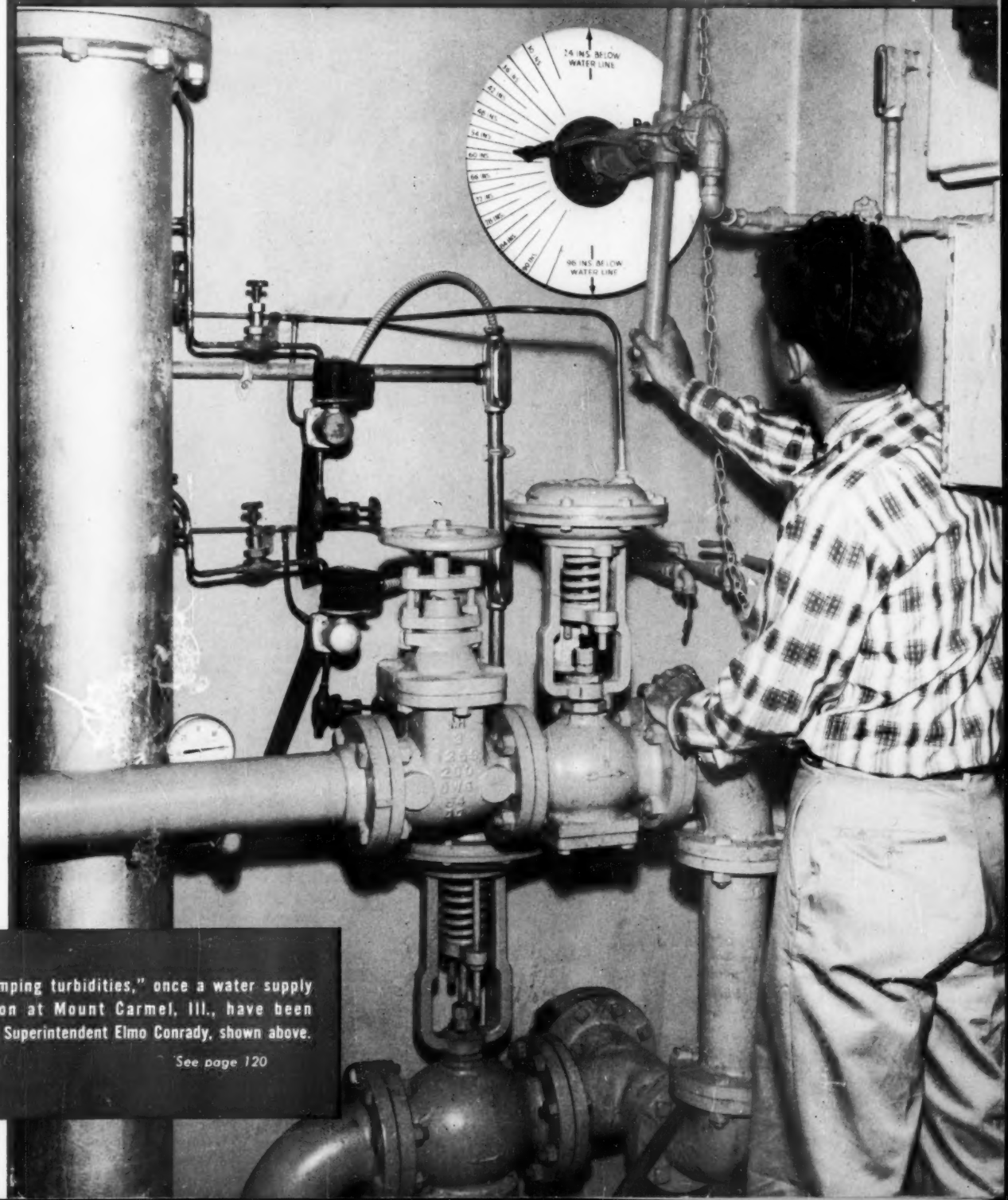
The American City

JANUARY 1956



The "jumping turbidities," once a water supply affliction at Mount Carmel, Ill., have been cured by Superintendent Elmo Conrady, shown above.

See page 120

How one community paves *residential* streets at moderate cost

Laying 1½ inches of hot-mix Texaco Asphaltic Concrete on a 4-inch select soil base provides a lasting yet economical pavement for residential traffic in Roanoke Rapids, N. C.

Roanoke Rapids, N. C., completed 235,000 square yards of paving recently, all of it on residential streets. A type of pavement was needed which would stand up under passenger car and light truck traffic for years with minimum upkeep and which could be built at relatively low cost.

These requirements were met by laying a 1½-inch wearing surface of hot-mix Texaco Asphaltic Concrete on a 4-inch select soil base. The base was composed of topsoil and sand-clay.

This resilient, long-wearing and economical type of Texaco Asphalt construction was the answer to Roanoke Rapids' residential traffic. It is one of many heavy-duty, intermediate and low cost types of street construction available to city officials through the use of Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils. Two helpful booklets describing methods and materials recommended for all of these types can be secured without obligation by writing our nearest office.

CONTRACTOR
F. D. Cline Paving Co., Raleigh, N. C.

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TEXACO REG. T. M.

TEXACO ASPHALT

JANUARY 1956

The American City

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The Cover Picture

Water Superintendent Elmo Conrady, of Mount Carmel, Ill., a featured author in this issue, also has won recognition as one of Illinois' outstanding water superintendents. The cover shows him adjusting the level of his new Permutit Precipitator. This unit, together with M and H valves and ACIPCO piping, has the task of treating a difficult, badly polluted water. Mr. Conrady tells of his success in his article, "The Jumping Turbidities," on p. 120 of this issue.

Index to Advertisers 232-233

"The Voice With a Smile"

Miss Service Representative
"The Voice With a Smile" in the telephone Business Office

One of the nicest things about telephone service is "The Voice With a Smile." It runs all through the business.

Millions of times a day the operators send it singing over the wires. You hear it when you visit the Business Office or telephone the service representative.

The installer brings it to your home when he comes to put in telephones. The lineman has it as he works along the road or gives you the right of way at a busy intersection.

In talking about telephone people and the way they go about their work, we'd like to say a good word for you, too.

For it's your friendliness that helps us do the kind of job you want us to do. And that means better service for everybody . . . all along the line.

BELL TELEPHONE SYSTEM

Harold S. Buttenheim

Harold S. Buttenheim

Becomes

Editor Emeritus

A STATEMENT BY THE PUBLISHER

William S. Foster

FOR 44 years my brother Harold and I, as Editor and Publisher respectively, have worked together to build a magazine unique in its field, in the belief that there would be a growing demand for a publication having two main functions:

(1) to provide municipal officials, engineers, and heads of city departments with information of practical value in their daily work; and

(2) while giving primary attention to the municipal engineering problems relating to the improvement of cities, towns, and villages, to be concerned also with problems of municipal administration, finance, and taxation; and with current progress in city and regional planning, zoning, and housing.

There is, I hope, general agreement that these objectives are being accomplished in the reading pages of THE AMERICAN CITY from month to month —thanks to Editor Harold S. Buttenheim and his able and loyal editorial staff and the cooperation of a host of friends and readers throughout the United States and abroad.

But time is marching on, and Harold Buttenheim, approaching his 80th birthday, has urgently requested that he be relieved of the major responsibility for the editorship of THE AMERICAN CITY.

For the first time in 44 years, therefore, a different name now rises to the top on the magazine's editorial masthead, and the former editor becomes Editor Emeritus.

The title of Editor now goes to William S. Foster, who for the last 14 years has filled with exceptional ability the position of Engineering Editor.

Alden W. Welch, who is well known and highly regarded by a multitude of our readers, will continue his long period of valuable service as Research Editor and as Editor of our reference annual, *The Municipal Index*. Two more recent additions to our staff who are serving with distinction are Douglas S. Powell, Associate Editor in charge of planning, zoning and related subjects; and William T. Dulac, Production Editor.

To fill the post vacated by Mr. Foster, we are adding a new name to our editorial masthead—that of Elroy F. Spitzer. A graduate of the University of Wisconsin, Mr. Spitzer has had a wartime career with the Navy's famous "Seabees," has been assistant city engineer of Kenosha, Wisc., and city engineer of South Milwaukee.

As publisher of THE AMERICAN CITY, I am gratified to number on our editorial staff skilled, experienced engineers who have the ability to write clearly and in an interesting manner. Mr. Foster, our new Editor, has been active in engineering writing since his college days. He is in frequent demand as a speaker on subjects varying from water and sewage treatment to air-pollution abatement.

Mr. Welch, a graduate of Pratt Institute, has been especially successful in spearheading traffic and street-lighting reforms. The foyer of our office carries a tribute to his work in the form of a Certificate of Appreciation from the Institute of Traffic Engineers. Mr. Powell, Yale graduate in civil engineering has an advanced degree in city planning from M.I.T. and an active record of city planning work.

Many of THE AMERICAN CITY'S readers know of the sincere devotion of Harold Buttenheim to the various municipal and civic causes that the magazine has helped to advance over the years. They will be glad to learn, therefore, that his title as Editor Emeritus will not prevent his continued cooperation with the magazine's staff in advancing the work that he has handled with such distinction throughout the years. His service as Chairman of the Board of The American City Magazine Corporation will continue as heretofore.

Edgar J. Buttenheim

Publisher

Down time is no joke.

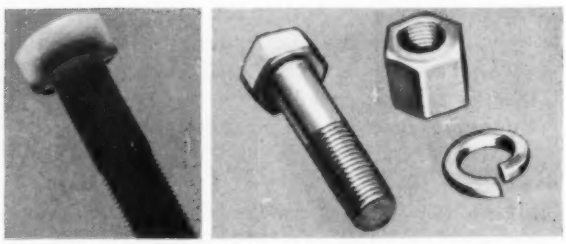
But it happens at times when track hardware gives out.

If you replace with original Caterpillar hardware, here's what you're sure of: bolts, nuts, capscrews and lock washers made from prechecked fine-grade steels, carefully hardened and tested, finished to the strictest specifications in the industry. You're sure of longer wear life, no matter how tough your jobs come. You're sure of *less* down time in the future.

If you replace with substitute hardware—can you be sure of anything?

Better get Caterpillar parts every time.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



On the surface, CAT® hardware looks like ordinary kind. But etched cross section of newly designed track bolt (left) shows depth of special "Hi-Electro" hardening penetration in bolt head.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

High Goal for Minimum Water Loss

I have read, with interest, the article by J. R. Patten in the November issue ("97% Accounted For," p. 101). I congratulate Mr. Patten on this high objective of accounting for 97% of Santa Monica's water supply and certainly hope that he attains it. If he does, he will probably be the first person who did so.

In the average water utility, when water leaves the pumping station, there are four possible ways in which it may be used or dissipated. A certain percentage passes through permanently set meters. In good operation, this is generally over 90%. A certain amount of water is used for flushing mains, meter testing, and other utility purposes—around 3%. Some water is used from hydrants for fire protection, for both private and public construction, street sprinkling, and sanitary and storm-sewer flushing. This also amounts to about 3%. The final 3% is generally unaccounted for and consists of leakage, underregistration of meters, unauthorized use of water, and errors in station metering.

I am sure we will all look forward to the results which Mr. Patten will eventually obtain.

L. A. Smith, *Superintendent Waterworks and Sewerage Madison, Wis.*

Contractor-City Crew Programs

Neal Bartholomew's article in the November issue ("Contractor-City Crew Teamwork," p. 110) is very much in line with modern employment practices in providing steady

employment rather than a guaranteed annual wage. The latter's weakness is in the fact that men must be paid whether or not work is performed.

Every city is engaged in new construction work of an occasional nature which is preferably performed by contractors. Construction work of a continuing nature, too, can generally best be performed by private contractors rather than by city forces. There are exceptions, however, in which the city can best perform minor construction work—especially of an emergency nature—to avoid the lost time of bidding and awarding minor contracts. Some degree of new construction of a minor nature is necessary to provide continuous employment for maintenance workers subject to seasonal unemployment. It is also desirable to give them experience and training for emergency construction work.

Aside from new construction, all cities must perform maintenance work of a general housekeeping nature. Of necessity, the city generally performs all work of a continuing operational nature for city-owned plants or other municipally owned properties.

The problem then resolves itself into contracting as much new construction as possible, consistent with providing steady employment for maintenance workers who would otherwise be subject to seasonal layoffs. Occasional conflicts arise in attempting to do this under some civil service rulings that do not provide for dual or multiple classifications of men switching from maintenance to construction. There is also the temptation of the city to attain contractor efficiency for occasional construction work by overinvestment in equipment, which may tempt them further into the contractor's natural field, where he can do the work most efficiently.

It is a natural and growing humane employment policy to recognize that the worker and his family live 365 days in a year and, therefore, he requires steady employment throughout the year. Management that can provide guaranteed steady employment need not be concerned about what is called the "guaranteed annual wage" that is attracting so much attention today.

The contractor is likewise an employer of labor, but does not enjoy the same advantage of shifting men from construction to maintenance. He has to be resourceful by the use of modern construction methods to give steady employment to his men or he may face the problem of the guaranteed annual wage for which the city as a customer will ultimately foot the bill.

George R. Thompson
Consulting Engineer
Detroit, Mich.

THE AMERICAN CITY

Harold S. Buttenheim, Editor Emeritus • **William S. Foster,** Editor • **Alden W. Welch,** Research Editor
Elroy F. Spitzer, Engineering Editor • **Douglas S. Powell,** Associate Editor • **William T. Dulac,** Production Editor
Jeannette Trotta, New Products Editor • **Sheila C. Malton,** Assistant Editor

Editorial and Executive Offices:
470 Fourth Avenue, New York 16, New York • MUrray Hill 5-9252

Edgar J. Buttenheim, President • **George S. Conover,** Vice-President
Edwin Wagner, Treasurer • **Edgar M. Buttenheim,** General Manager
Myron MacLeod, Advertising Manager • **Edward George Allen, Jr.,** Promotion Manager
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Branch Offices:
Chicago 6 • 2329 Daily News Building • CEntral 6-2853
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CHALK UP ANOTHER

Horton Elevated Tank for Cleveland

500,000-gal. Horton radial-cone bottom tank.

2,000,000-gal. Horton radial-cone bottom tank.

1,000,000-gal. Horton radial-cone bottom tank.

The latest addition to Cleveland's municipal water system. A 750,000-gal. Horton radial-cone bottom elevated tank.

Cleveland, Ohio's municipal water distribution system has kept pace with the City's growth and increased customer demands by the installation of five Horton® radial-cone elevated tanks. Shown here are four of the five Horton tanks helping to maintain uniform pressures and meet peak demands in the City's distribution system.

Write our nearest office for information on Horton elevated tanks. They are built in capacities to 3,000,000 gallons.

CBI

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston
Los Angeles • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Water Supply and Treatment

Newburgh, N. Y., Reports More Fluoride Benefits

NEWBURGH, N. Y., another important test city in the study of water fluoridation now finds a 58% reduction in dental decay among children who have been drinking fluoridated water all their lives. (See also "Fluoridation's Decade of Dental Gains in Grand Rapids," December 1955, p. 96.) Results were summarized by New York State Health Commissioner Dr. Herman E. Hilleboe at the recent New York Institute of Clinical Oral Pathology meeting in New York City.

As is the case in Grand Rapids, the Newburgh study has been in progress for 10 years. Conditions were matched with the control city of Kingston, a municipality about 35 miles away, of about equal size and general characteristics, but using unfluoridated water. At the end of the 10-year period, Newburgh children six to nine years of age, who had been drinking fluoridated water all their lives, had 58% less tooth decay than Kingston children of the same age.

Children older than 10 years who had been drinking fluoridated water for the entire test period also showed substantially less tooth trouble. Reductions ran as follows:

Age Group	% Reduction
10-12 years	52
13-14 "	48
16 "	41

Opposition to the use of fluorides arises chiefly from the fear of the chemical and lack of complete understanding of its effect on the body. Fluorine is one of the most active and aggressive chemicals, and extremely dangerous in concentrated form. Those opposing fluoridation believe that not enough time has elapsed to prove that it does not produce a damaging cumulative effect on the human system in ways that not yet are clearly diagnosed.

Opponents argue that individual drinking water habits vary so greatly that the test is no longer scientifically accurate, and that better accuracy could be obtained by fluoride tablets, flouridated milk, or treated toothpaste. The current application recommended is 1 ppm of fluoride, or the equivalent of roughly 20 pounds of sodium fluoride per 1,000,000 gallons of water.

The Newburgh-Kingston tests by pediatricians showed no differences between the children in each community from the standpoint of blood characteristics, bone structure, growth, hearing, or vision. At the same meeting, Dr. Harold C. Hodge, professor of pharmacology at the University of Rochester, concluded that present evidence does not justify postponement of fluoridation.

The fluoridation program presented virtually no operating problems. Water Superintendent John F. Kingsley found operating costs infinitesmal and the work easily handled by existing crews. The added duties amounted to nothing more than a visit to the fluoride feeders once or twice a day, and occasionally refilling with sodium fluoride. Mr. Kingsley handled the laboratory tests himself and found that they worked easily into the balance of his testing procedure.

The plant has two Wallace & Tiernan Type NA dry-feed machines, originally designed to feed a flour bleach. He has used them for the entire period and has found that they worked accurately without corrosive deterioration. He ran into pipeline corrosion in the line that handles a strong fluoride solution, and has replaced this with a nonferrous pipeline. Normally, one feeder would be sufficient, however, Newburgh uses two to insure that the fluoride program will be continuous.

Originally, the men handling the sodium fluoride wore rubber aprons, rubber gloves, and respirators. However, for several years they have not bothered with them. Mr. Kingsley reports that medical tests have shown no ill effects and that the men themselves have enjoyed strong, vigorous health. Each feeder has the usual dust-removal equipment that exhausts to atmosphere.

Mr. Kingsley believes that the city will continue using sodium fluoride even though it is somewhat more expensive. Its ease of feeding and soluibility are features that overcome the small difference in cost.

Currently, somewhat more than 1,110 public water supplies are being fluoridated, bringing this type of treatment to roughly 22,000,000 people. About 25 cities have introduced the treatment but abandoned it.

Larger Cities Like Surface Supplies

MORE than 52 million people in communities of 25,000 and over now depend upon surface sources for their daily water supplies, as compared with fewer than 40 million eight years ago, according to a Public Health Service nationwide inventory. The study also disclosed that the use of untreated water by the country's larger communities has virtually ended. Less than 1% of the population in communities of 25,000 and over today use untreated water.

During the eight-year period covered by the inventory, the Service pointed out, the number of communities in the 25,000-and-above category has increased from 422 to 570 and their combined population from 53 million to 63.9 million. When the suburbs are included, the number of people served by municipal water systems of these communities has increased from 61.8 million to 82.6 million.

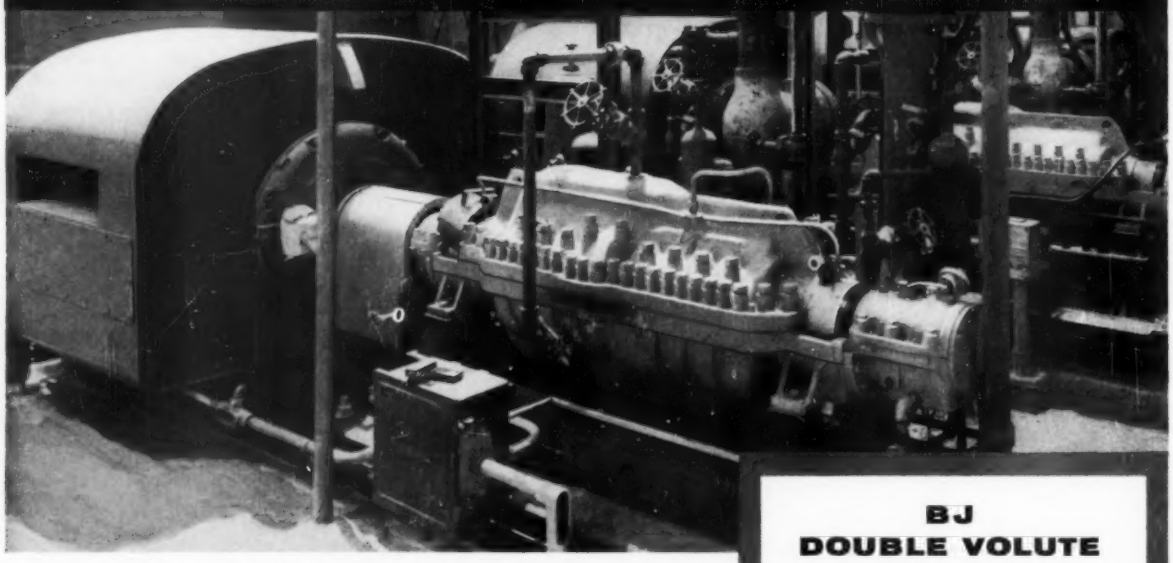
The survey also showed a slight drop in public ownership of these water systems. In 1948, 79.4% were publicly owned; in 1955, the figure was 76.3%.

Latest results of the periodic inventory, initiated in 1939 at the request of the Conference of State Sanitary Engineers, are being made available to water and health authorities to plan water development projects.

The inventory was compiled by the Public Health Service's Robert A. Taft Sanitary Engineering Center at Cincinnati from data provided by State Health Departments and local officials. It was directed by Gordon E. McCallum, Chief of the Service's water supply and water pollution control program.

NEW Byron Jackson DVMX
SPLIT CASE BOILER FEED PUMP

...Engineered for Medium Size Power Plants



This new Byron Jackson DVMX split case pump gives the same trouble-free service that BJ barrel type Boiler Feed Pumps have been providing for the larger power plants in the United States for many years. This DVMX model is engineered primarily for medium-sized power plants and delivers capacities to 2200 gpm, heads to 1200 psig. and temperatures to 350° F.

Here's what you get in the new DVMX

1 Horizontally-split case, with both nozzles in the lower half of the pump case, permitting removal of the top half of the case and the complete rotating element without disturbing the piping.

2 Double volute design which assures radial balance of the pump at all capacities.

3 Impellers arranged in equally opposed groups, assuring hydraulic axial balance without resorting to the use of any auxiliary high pressure balancing devices.

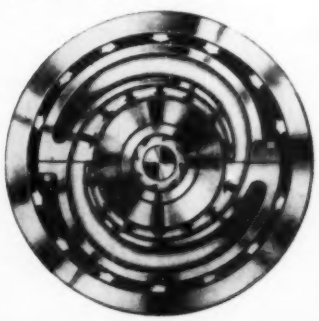
4 Available with reliable BJ high pressure Mechanical Seal especially designed for boiler feed service.

5 Furnished with a spacer type coupling for easy removal of the mechanical seal.

6 The thrust and radial bearings including the self-contained oiling system are of the same reliable construction that has proven so successful over the years in the larger BJ barrel type Boiler Feed pumps. The oiling system is of ample size to supply the driver bearings if desired.

BJ
DOUBLE VOLUTE

By the use of BJ Double Volute inner cases, the flow is divided into two identical fluid channels with outlets 180° apart. Equal opposing forces are created, resulting in radial balance without pressure-bending moment on the shaft.



BJ MAKES BOILER FEED HISTORY!

Byron Jackson is building the world's largest boiler feed pump. This 12,000 HP pump will deliver 6,330 gallons per minute at total head of 6,400 feet, or about 2700 pounds per square inch, at a speed of 3510 RPM.

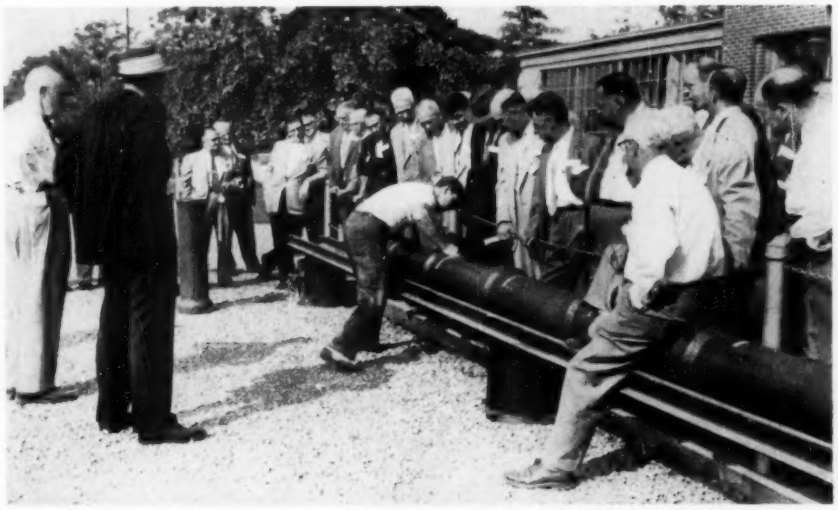
Byron Jackson

Division of Borg-Warner Corporation
P.O. 2017, Terminal Annex, Los Angeles 54, California

BJ

Sewerage and Sewage Treatment

Nonleaking Sewer Joints



Even under internal pressure, this sewer pipe with special type of jointing showed no leakage.

THE answer to sewer-pipe jointing that doesn't leak was demonstrated recently before the eastern chapter of the American Society of Sanitary Engineers.

Officials of the Robinson Clay Products Company arranged for several sections of pipe to be jointed by the new Wedge-Lock principle. They then subjected the entire length of pipe to an internal pressure of 10 pounds per square inch. An examination before the critical engineering eyes of the meeting showed no leakage in the joints.

The demonstration took place in the Pottstown (Pa.) plant of the Robinson company. Its general offices are in Akron, Ohio.

"When You Gotta Grow..."

SORRY TO INCONVENIENCE YOU
This Sanitary Sewer is Being Built to
Serve a BIGGER AND BETTER LARNED
"When you gotta grow you gotta grow"
The City of Larned

Larned, Kans., believes in tempering inconvenience with good humor. City Manager Wayne N. Baxter placed this sign at the ends of the city's $200,000 sewer improvement project passing through its central business district and collected dividends in chuckles from motorists and property owners who had to endure the discomfort of the excavated streets.

Don't Copy Milorganite

IF you are in the fertilizer business, don't try to market your product under any name derived from the suffix "organite." If you do, you are treading on property that the Milwaukee Sewerage Commission claims for its own.

A settlement of the trademark litigation between the Commission and a Pittsburgh concern distributing "Pittorganite" has been resolved in favor of Milwaukee in the U. S. District Court for the Western District of Pennsylvania. The decree perpetually enjoins the concern from selling or marketing fertilizer either under the name of "Pittorganite" or "Kapoganic—formerly called Pittorganite."

The Milwaukee Sewerage Commission reports that this is the first instance where legal action had to be used. In the past, some firms voluntarily discontinued the use of such a tradename when informed that it is the exclusive property of the Milwaukee Sewerage Commission. However, O. J. Noer, sales manager for Milorganite, reports more legal action may be in prospect.

Detergents Reduce Wool-Mill Pollution

SYNTHETIC detergents, blamed for the woes of billowing suds in many municipal sewage treatment plants, appear able to reduce pollution problems in industrial wool-scouring installations. Many synthetic detergents have a much lower oxygen demand than soaps. Consequently, the use of these detergents in the place of soap could lower the oxygen demand contributed by a woolen mill from 30 to 45%. This was reported in a new guidebook entitled, "Wool Processing Industry," issued by the Public Health Service, Division of Sanitary Engineering, Washington 25, D. C.

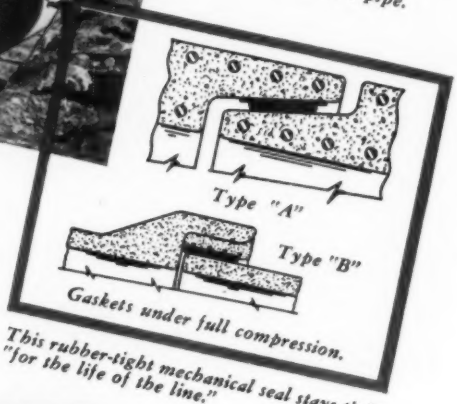
Other suggestions include substituting mineral acids for acetic in dyeing processes and using synthetic compounds like carboxy methyl cellulose in place of starch.

PUT YOUR PIPE JOB AHEAD

3 Ways...

The only preparation required for TYLOX Joints is to snap on Gaskets and paint sliding surfaces with Tylox Cement.

After preparation, merely shoving the pipe home makes a permanently tight joint . . . even in hard-to-handle, large diameter pipe.



This rubber-tight mechanical seal stays tight "for the life of the line."

Specify

TYLOX

Flexible Rubber PIPE JOINTS

Fast-working, long-lasting and *compression*-tight TYLOX Pipe Gaskets are the sure way to put your pipe projects *ahead,* in the three most important aspects of sewerage and drainage work. Write "TYLOX RUBBER JOINTS" into your specifications and count on: MORE PIPE DOWN PER DAY — TYLOX specifications encourage economical sewer bidding because contractors can lay pipe faster, and your job stays on or ahead of schedule . . . TYLOX not only eliminates all costly mortaring, calking, collaring or "pouring" operations but other expensive delays as well. For example, wet trenches can't slow up the work, and TYLOX *flexibility*—which compensates for angularities in the line — permits immediate backfilling . . . even use of straight pipe "on radius."

TROUBLE-FREE OPERATION—Low maintenance is inherent in TYLOX-jointed pipe lines . . . Made of specially compounded rubber which acids, alkalies or abrasives cannot affect, TYLOX won't corrode or deteriorate . . . it doesn't have to be "dug up" for repairs . . . it keeps damaging roots and sediment *out* of the pipe, reducing *future* maintenance requirements of the line.

NO INFILTRATION PROBLEMS—You can cut your design permissibles for infiltration *way down* with TYLOX Joints . . . TYLOX Rubber Gaskets seal by compression, not — as in the case of bituminous or mortar joints —by adhesion. When the pipe is shoved home, TYLOX "packs" the joint's annular space tight by mechanical action, and the natural resilience of the rubber *keeps* it tight. Vibration, shock loads and soil stresses cannot affect this seal, and the joint is infiltration-proof for the life of the pipe itself.

Take advantage of these TYLOX features to put *your* pipe projects ahead 3 ways . . . Make it a point to specify TYLOX RUBBER JOINTS on *every* sewerage and drainage installation you plan.

Write for specification data and illustrated case histories on Tylox Rubber Joints.

1560

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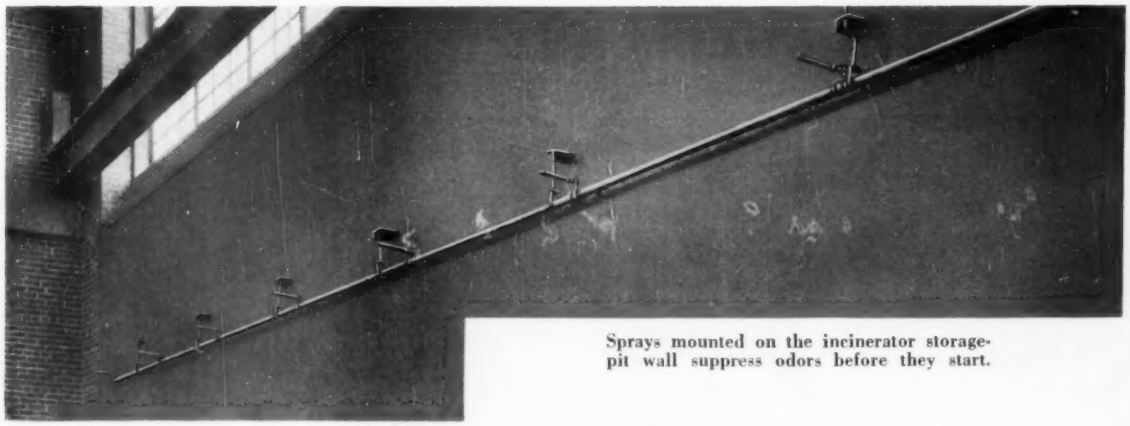
427 W. Grant St. · Kent, Ohio

Street Cleaning & Refuse Disposal



Sprays mounted on the incinerator storage-pit wall suppress odors before they start.

Spray System Suppresses Incinerator Odors

THE Brookline incinerator has a reputation for beauty. At a New England Chapter meeting of the American Public Works Association, visitors labeled the plant an "incinerator palace." Moreover, it is located in the heart of a beautiful residential area, with fine homes only a short distance away.

The plant reflects imaginative architectural style. It has a parklike setting and has been designed so that it can serve as a community center if desired.

Nevertheless, Town Engineer Walter Devine had reservations about one feature of the plant. In line with good engineering principles, it provides a storage pit so that the refuse can be fed into the incinerator in a manner that promotes good combustion. However, the storage pit does hold the refuse and does develop odors no matter how careful the operation.

If the odors could not be prevented, reasoned Mr. Devine, they could be counteracted. So he made a study of the various materials that seemed best fitted to the counteractive assignment and selected Sanifil, a liquid concentrate which is manufactured by the Stewart-Hall Chemical Corporation, Mount Vernon, N. Y. Generally, this chemical is simply sprayed by a portable unit. However, in keeping with the high standard of efficiency that the Brookline plant reflects, Mr. Devine designed an automatic system for spraying the odor suppressor into the storage pit.

The system consists of a 50-foot manifold containing eight nozzles, all mounted in a horizontal position, and spaced 6 feet apart. A standard 275-gallon fuel-oil storage tank and pump were installed in the basement of the plant. The chemical is mixed in the tank at the ratio of 100 gallons of water to 1 gallon of Sanifil.

The entire system is controlled by an electric switch, located next to the pit, which starts and stops the pump motor. The sprays operate for about 20 seconds and deliver approximately 7 gallons of the solution to the pit. The amount of spray needed varies.

Results have been encouraging. Troublesome odors no longer threaten to rise out of the incinerator pit to trouble the parklike appearance of Brookline's "incinerator palace." The spraying system also contributes to the suppression of clouds of dust when refuse is being dumped into the pit.

Mechanical Sweeping in a Small City

ONE sweeper can keep streets clean in a city of 5,500 with 20 miles of streets by working 14 days of each except the winter months. In Iowa Falls, we actually have slightly less than 20 miles of curbed streets and our Austin-Western street sweeper keeps them clean by traveling an average of 100 gutter miles per month. This schedule permits it to clean the main downtown business district three days per week, and to cover the balance of the city once a month. The sweeper operates in the business district from 4 to 8 a.m. when the streets are empty.

The sweeper uses palmyra fiber in its rear broom and is able to sweep 125 miles of street with just one broom filling. The maintenance department rewinds the brooms with its own machines. The wire gutter broom serves for 275 miles.

PAUL L. WHITE, *City Manager, Iowa Falls, Iowa*

Iowa Falls' sweeper has no difficulty at all in keeping up with its schedule of 100 gutter miles cleaned per month.

"We're finally getting
MOBIL SWEEPERS!"

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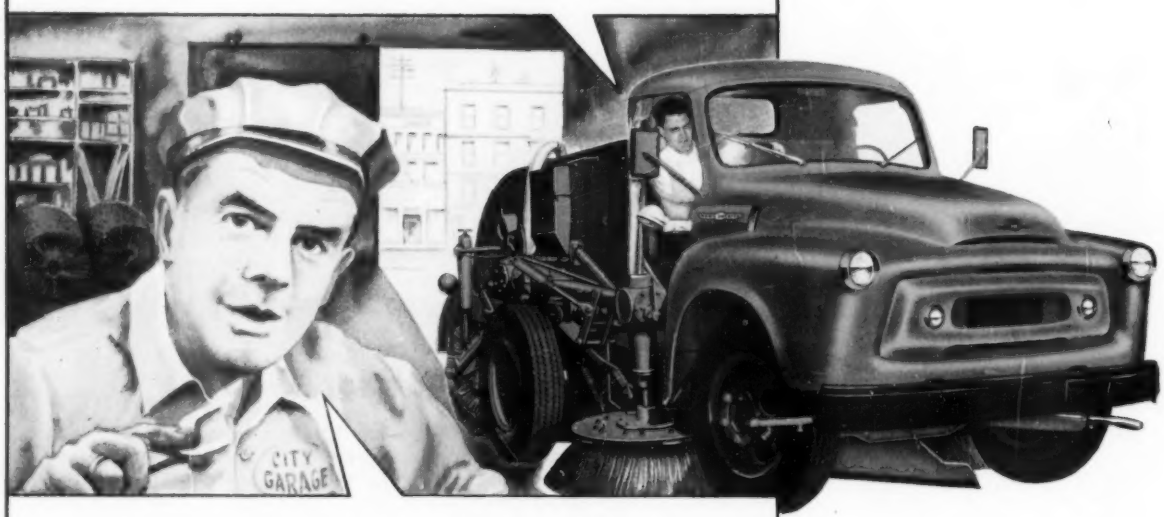

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Street Construction & Maintenance

The Buses Stop on Concrete in Washington, D. C.

PHOTO COURTESY CALCIUM CHLORIDE INSTITUTE

Concrete bus stops aid the buses and the motorists, and eliminate a costly street maintenance headache.

IN the nation's capital city, buses stop on concrete to load and unload passengers. Washington's buses are big, each weighing 16 tons loaded and from 5 to 11 tons empty. Constant starting and stopping in the same area tears the asphalt surface. Furthermore, the concentration of oil drippings in these stopping zones softens the asphalt at a spot where it receives the most service.

Where a street has a good, strong concrete base supporting the asphalt, the district engineers have simply replaced the asphalt with 3 inches of concrete. In other areas, the entire base is ripped away to be replaced by 8 inches of concrete.

The concrete is cured with wet burlap for the first 24 hours and then is covered with calcium chloride at the rate of 1½ pounds per square yard of surface. In three days, when the surfacing reaches a strength of 450 pounds per square inch as recorded by the transverse beam test, it is opened to traffic.

The concrete strips offer assistance to the public, also. They discourage motorists from parking in bus-stop zones and they positively identify the bus stops to potential passengers. The program is directed by John F. Hoover, engineer of construction for Washington, D. C.

Better Base for Better Streets

Stockpiled gravel and sand will soon form the base for better streets in Clarksdale, Miss. The city-owned Adams Trave-Loader handily loads the material into a waiting truck.

A bronze plaque commemorates the 1,500,000th square yard of concrete pavement of Sheboygan's city streets. The plaque was placed by (left) Superintendent of Streets William Muehlenberg, and Director of Public Works Robert Fleischer (right).

1,500,000 Square Yards Of Concrete

WHERE concrete pavement is concerned, Sheboygan, Wis., is one of the "fustest with the mostest." Since 1911, just two years after the first full mile of concrete pavement was built in the nation, Sheboygan has placed nearly 77 miles of this surfacing. The 1,500,000th square yard was marked recently with the imbedment of a bronze plaque. The city's choice in surfacing two-thirds of its total street mileage with this material is supported by the fact that not a single block of the concrete-paved streets has ever been reconstructed, resurfaced, or replaced. For a city of 42,000 with a heavy traffic volume, this is a record.

Another reason for Sheboygan's continued use of concrete is its low maintenance cost. An 18-year span of street maintenance records indicate that concrete pavement costs an average of $103 per mile per year to maintain. Annual maintenance cost of two other types used by the city average $565 and $809 per mile.

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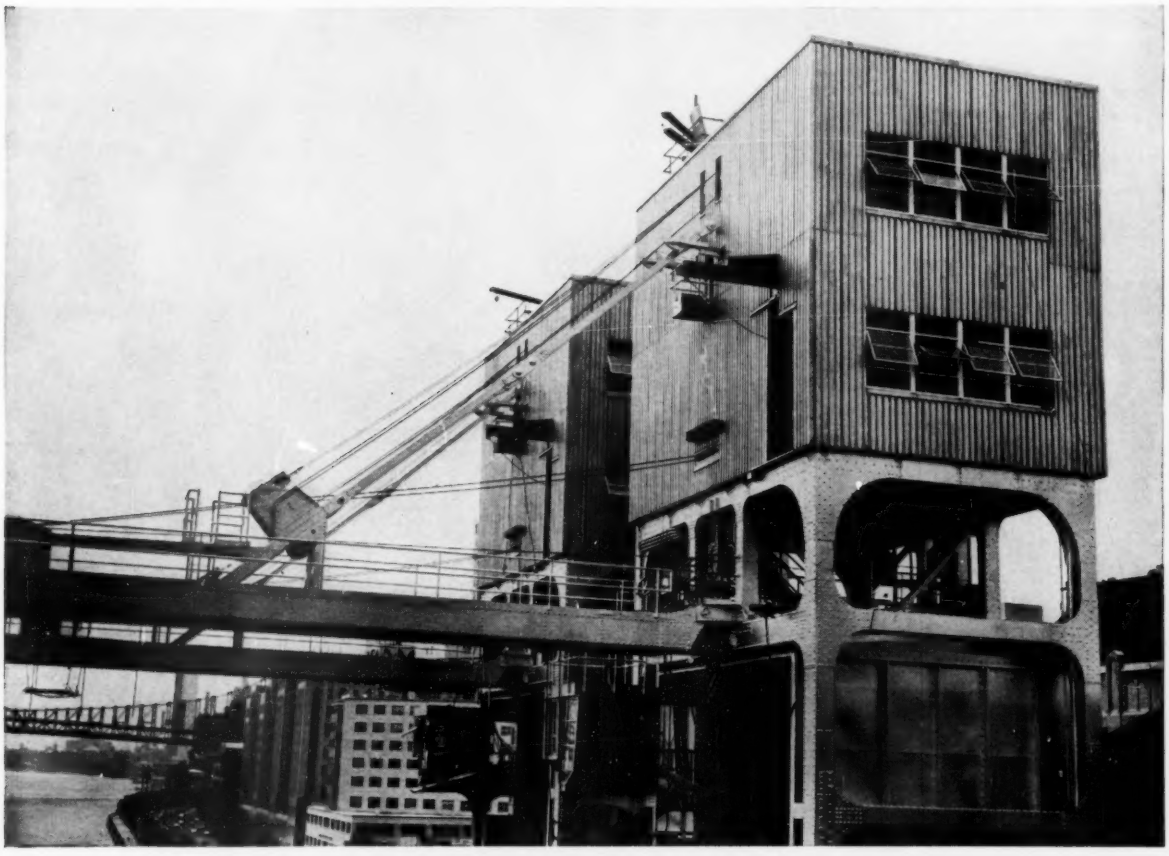

FOR GOOD RESISTANCE to coal gas, chemicals and chemical fumes, the New York City Transit Authority selected a Parlon-based paint for these new coal unloading towers. The tower was designed and built by Mead-Morrison Div. of the McKiernan-Terry Corp. The paint is RIW Korosist Chlorinated Rubber Base Paint, manufactured by Toch Brothers, Staten Island, New York.

Across the nation an ever-increasing number of municipalities are discovering the unique properties of paints based on Hercules Parlon (chlorinated rubber).

Wherever protective coatings must stand up to a demanding challenge—whether the requirement be traffic paint, or for a sewage plant; exterior finishes for masonry buildings, or interior protection for metal equipment—Parlon-based paints are providing longer service at lower long-term cost.

Parlon's unusual ability to withstand the corrosive effects of chemicals and salt water atmosphere plus its adaptability to masonry, wood and metal surfaces makes it the ideal all-purpose maintenance paint. Your local paint supplier can provide additional information, or write direct to Hercules.

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HERCULES POWDER COMPANY
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Our Municipal Notebook

Renew Cities or Face Bankruptcy Mayors Told at AMA Convention

A DECLARATION that some cities may experience municipal bankruptcy by 1965, a call for an effective program of federal housing aid, and a proposal to develop a form of government to meet metropolitan-wide problems were made to more than 1,000 mayors and other delegates at the 32nd annual congress of the American Municipal Association in late November. Meeting in Miami, Fla., the congress attracted representatives from approximately 350 cities throughout the country.

Albert M. Cole, Administrator of the federal government's Housing and Home Finance Agency, told the mayors that they were faced on one hand by a future of unprecedented demands for expanded facilities to serve an urban population that will take a 25,000,000 to 28,000,000 jump in 10 years and on the other hand with city physical patterns and tax bases that have been undermined by years of spreading slums and blight. He warned them that unless they undertook comprehensive programs aimed at reshaping the basic patterns of their cities, they would be faced with nothing less than a bankruptcy of their physical and financial resources by 1965.

In a speech that was one of the strongest statements by a federal official of the serious problems ahead for cities, Mr. Cole urged the mayors to begin reshaping their cities as quickly as possible. He described the structure of federal aid programs available to help in the rejuvenation of obsolete city patterns.

Speaking a day after Mr. Cole, Adlai E. Stevenson declared that such federal aid programs for city rebuilding should be expanded if they were to meet current needs. He especially attacked the government's present housing program and called for increased funds to build enough new dwellings to satisfy the requirements of low-income families. These requirements were not being met today, he said, and quoted figures showing that in New York City alone there were almost 1,000,000 families with incomes of less than $3,500 per year. He indicated further that the current federal program of 45,000 new public housing units during the present fiscal year was unrealistic.

In a round-table discussion of metropolitan and fringe area problems Mayor Robert F. Wagner of New York City proposed the formation of a special Association committee to develop a plan for a structure of government that could be used to deal with metropolitan-wide problems. This suggestion was endorsed by Mayor Richard J. Daley of Chicago and was later adopted unanimously by the Association.

Mayor Wagner also used the congress as a platform for proposing the formation of a special tri-state commission to find comprehensive answers for the problems of the New York metropolitan area. In contrast to such agencies as the Port of New York Authority and the New York-New Jersey Waterfront Commission that have been set up to deal with specific area-wide problems, the proposed commission would be empowered to look at the area as a whole and cope comprehensively with its major problems.

At the business meeting of the congress, Mayor Wagner was elected president of the Association, succeeding Mayor Allen C. Thompson of Jackson, Miss.

Resolutions passed at the convention called for the federal government to (1) provide for natural disaster insurance; (2) assist cities and states in meeting juvenile delinquency problems; (3) make bigger financial contributions to municipalities where large holdings of federal real estate exist; (4) speed up Federal Housing Administration procedures; and (5) to continue to exempt municipal bonds from federal taxation. Congress was called on to pass a federal aid highway program that will give fair recognition of urban as well as rural needs.

North Carolina Studies Hurricane-Prone Communities

THE State of North Carolina, through the office of Governor Luther Hodges, is currently conducting a long-range hurricane rehabilitation project. The initial stages of the project consist of an investigation of the effects of hurricanes on the coastal areas of the state and preliminary recommendations for ways by which the state and its people may live with the continued threat of hurricanes. Attention is being focused on both the resort areas that have been badly hit and on the extensive low-lying inland agricultural, forest, and urban

REPRESENTATIVE MUNICIPAL BOND ISSUES

December 1 to December 10, 1955

Date of Issue			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
12/1/55	Potsdam, N. Y.	$ 207,000	Various purposes	10¼	3.07
12/2/55	Ottumwa, Iowa	50,000	Sewer Construction	5½	2.4421
		20,000	Bridge	2½	2.345
		148,000	Street Construction	8	2.5824
12/5/55	Warren, Ohio	317,725	Storm Sewer	5⅝	2.653
12/5/55	Charles City, Iowa	25,000	Water Revenue	2¼	2.94
12/5/55	Elyria, Ohio	1,000,000	Water Works Imp. & Extension	10¼	2.922
12/6/55	Bakersfield, Cal.	880,000	Off-Street Parking	14¾	3.242
12/6/55	Bernards Tp., N. J.	784,000	Building — school	11¾	2.70
12/6/55	Hyde Park, N. Y.	36,000	Fire Construction & Equipment	6	2.74
12/6/55	Norwood, Mass.	294,000	Electric — $129,000 Water — 165,000	5½	2.228
12/6/55	Salamanca, N. Y.	97,000	Street and Bridge	5	2.59
12/7/55	Willowick, Ohio	176,675	Street Improvement	6½	3.69
12/7/55	Niagara Falls, N. Y.	2,180,000	Public Improvement	5½	2.19
12/7/55	Bingham, Mass.	908,000	Sewerage Act — $508,000 School — 400,000	14½ 10½	2.48

Compiled from *The Bond Buyer*

THE LINE THAT HELD

At Waterbury, Conn., this Lock Joint Reinforced Concrete Cylinder Pipeline, undermined by flood waters, gave trouble-free service, alleviating a critical water shortage.

Although sections of this 48" Lock Joint water supply line for Hartford, Conn. were uncovered by the flood, it continued to give satisfactory service.

The destiny of England once hung on Wellington's "thin, red line" at the Battle of Waterloo. Daily your community's safety from fire and epidemic depends, to a large degree, on its water supply and sewage lines.

When the backwash of Hurricane Diane inundated western New England, the many Lock Joint installations in the area stood firm. These lines, in some cases the main source of water supply or of sanitary sewage disposal, continued to give trouble-free service even when uncovered and undercut by raging flood waters.

Such rugged pipe deserves your consideration. Its strength is evident, its initial high carrying capacity is permanent, and its useful life is exceptionally long.

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Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Our Municipal Notebook (continued)

areas that were severely flooded by the storms of 1954 and 1955.

The project, financed through the state's Council of Civil Defense, is being conducted at the University of North Carolina. The university's Department of City and Regional Planning prepared the project for the Governor's action, and assisted him in recruitment of a staff.

The initial stages of the project, to be completed in January, are being directed by Pearson H. Stewart, on leave from his position as director of planning in Warwick, R. I. Aelred J. Gray, Chief Community Planner of TVA, who directed the Governor's Hurricane Rehabilitation Study in Rhode Island, is among the project's consultants.

Relocation Policies Aired At Special Meeting

AT A RELOCATION Institute conducted on November 17 by The Women's City Club of New York, Milton Saslow (now president of the Nassau Management Company, Inc.) who, it is generally agreed, has done an outstanding job of tenant relocation in the Morningside section of New York City, gave a talk on relocation policy.

Mr. Saslow stated that relocation to decent, safe, and sanitary housing is the major goal of those entrusted with the job—with two important subsidiary goals. One of these is that no site family should be evicted unless it refuses unreasonably to accept suitable accommodations, then available, which are within its means. The second is that as long as families reside on the site, essential services must be maintained.

In setting up the site clearance and relocation program, Mr. Saslow used the following techniques:

1. Quick establishment of a relocation and management office, properly staffed. By properly staffed, he means staffed by people able to understand the tenants' language and problems. In much of New York, for instance, Spanish-speaking staff members are needed.

2. A step by step schedule of relocation, demolition, and construction to facilitate relocation and make possible an earlier construction start. Morningside was done in three parts.

3. The preferential admission of eligible site tenants to housing authority projects.

4. A policy of financial assistance, providing for the payment of moving expenses (within a reasonable distance), finders' fees, and redecorating of apartments.

5. A program to assist families that are ineligible for public housing or want to move into privately-owned accommodations. An apartment-listing service and inspection of vacant apartments are some ways to help. It is important to get families to do as much as possible for themselves. Once people understand that a definite effort is being made to help them, many will undertake to help themselves. Many in Morningside found their own apartments in the proper price range (averaging about $61 a month) and these apartments were all inspected by the relocation office.

6. Progressive or "piecemeal" demolition of buildings as vacated, wherever possible.

7. The removal of commercial occupants on a schedule to tie in with the relocation program for residential tenants.

8. Legal action to obtain eviction of families that are unreasonable and uncooperative in accepting relocation offers. There should be an apartment ready and waiting for them when the court action is taken.

9. Good public relations with site occupants, community organizations, and governmental agencies and departments. Good relations are very necessary with cooperative as well as hostile groups. The tenants must be made to feel from the very beginning that there will be ample time to find suitable accommodations, that every effort will be made to help them, and that they won't be summarily evicted.

10. Close coordination via regular meetings with executive officers, architects, construction superintendent, and demolition contractors to insure a close-knitted operation designed to meet the relocation, demolition and construction schedules on time.

Housing Shortage Threatens Older Single Persons

PHILIP J. CRUISE, chairman of the New York City Housing Authority, recently focused attention on the most difficult relocation problem —that of providing adequate housing for older single persons.

To help remedy this shortage the Authority is now providing specially designed and equipped apartments for aging single persons and couples in new state-aided projects, equal to 5% of the total number of apartments in these projects. It is also increasing the proportion of small apartments suitable for single-person occupancy in all new projects now being designed, and it is converting for single-person occupancy two- and two-and-one-half-room apartments originally designed for the use of couples in state-aided projects.

"One of our most serious handicaps," said Mr. Cruise, "is the fact that we are prohibited by federal regulations from admitting single persons to federally aided low-rent projects. I cannot too strongly urge that this weakness be promptly rectified in order that the federal program can play its part in helping to meet the growing housing needs of older persons."

Land Reservation for Local Parks Successful in Maryland

THE Maryland-National Capital Park and Planning Commission has found a successful way of acquiring park and other public lands for rapidly growing suburban areas in its special land reservation program. The program, which has been in effect successfully for two years, requires subdividers to set aside park or other lands for later acquisition by the Commission, prohibits construction on the land, forgives taxation of the property during the reservation period, and then lets the property revert to the subdivider if it hasn't been purchased within a given time. The reservation period is limited to three years.

Here is how the program works. When a new subdivision is filed with the Commission, it is immediately referred to the General Plan division, which studies it to determine the need for reserving any land within the proposed area for public use. Reservations may be required for highway or street rights-of-way, public building sites, parks, playgrounds, or other public purposes.

If it looks as though a reservation will be desirable, the Commission discusses it with the highway department, school board, or whatever public agency may be concerned with the acquisition. After both parties agree on the land to be reserved, the Commission finalizes the reservation by preparing a map showing the boundaries and area to be set aside. An estimate is also made of the time required to acquire the land. The subdivider is then instructed to include the reservation in preparing his final subdivision plan.

During the reservation period, no buildings can be erected on the land

that has been set aside. Furthermore, no trees, topsoil, or cover can be taken away or destroyed. Grading of the land is prohibited, and storm drainage structures that would discharge water on the reserved land are forbidden.

To stop taxation of the reserved land, the Commission advises all taxing and assessing bodies that the reservation shall be exempt from state, county, and local taxes during the reservation period.

Breathing Period

Although the program does not obviate the need for purchasing properties for park or other public purposes in rapidly growing areas, it does give a breathing period of up to three years in which purchasing schedules can be developed and carried out.

Copies of the special state enabling legislation and the Commission's subdivision regulation relating to the reservation program can be obtained by writing to the Maryland-National Capital Park and Planning Commission, Planning Building, 8500 Colesville Road, Silver Spring, Md.

American Institute of Planners Honors Lewis Mumford

LEWIS MUMFORD has been elected as an Honorary Member of the American Institute of Planners. In announcing the election in November, John T. Howard, president of the Institute, attached the following statement:

"Teacher and author for 30 years, Mr. Lewis Mumford is known around the world for his contributions to the development of a philosophy of planning. As a critic of architecture and the arts, he has made significant contributions to the understanding of the living traditions of the past in contemporary architecture.

"As a philosopher he has given humanism and social democracy a specific content as well as a new set of goals. He is recognized as the great historian of city development and the leading disciple of the environmental planning philosophy of Patrick Geddes.

"His writings on city planning have done more to spread an understanding of the relationship between man and his environment than those of any other person of this century."

"For the Good of Brazil, Improve Your Municipality"

WITH THIS challenging slogan, the Brazilian magazine, *O Cruzeiro*, is conducting annual award contests designed to discover which cities have made the most progress during the preceding year.

Last May each city government in Brazil received a booklet which contained a detailed description of the complete procedure to be followed. About one-third of these 2,000 municipalities participated in the contest. After careful examination of the reports submitted by the entrants, the ten cities showing the most progress in the past year were chosen. Then a three-man team, consisting of Gerald N. Hardy (of Point IV's Institute of Inter-American Affairs), Blias Esquenazi (of the Brazilian Institute of Municipal Administration), and Mario de Moraes (of the magazine, *O Cruzeiro*), was sent to the ten cities to invite mayors or their representatives to Rio de Janeiro to present their city's bid for honor awards.

The five cities that earned the honor award were:

Adamantina (Sao Paulo)—Mayor, Dr. Euclydes Romanini
Araras (Sao Paulo)—Mayor, Herminio Ometto
Blumenau (Santa Catarina)—Mayor, Gerhard C. P. Neufert
Londrina (Parana) — Mayor, Milton Menezes, and
Mutuipe (Bahia) — Mayor Mario de Matos Rocha.

Brazil's president, Dr. Joao Cafe Filho, personally presented these awards.

Honorary mentions were delivered by the president of *O Cruzeiro*, Mrs. Amelia Whitaker Gondin de Oliveira, to the five runners-up:

Mossoro (Rio Grande de Norte)—Mayor, Jeronimo Vingt Rosado Maia
Baturite (Ceara)—Mayor, Francisco Ramos
Patos (Paraiba) — Mayor, Darcilio Wanderley de Nobrega
Sao Caetano do Sul (Sao Paulo)—Mayor, Anacleto Campanela, and
Guaiba (Rio Grande do Sul)—Mayor, Arlindo Stringhini.

The "Cities of Major Progress" contest was patterned after the "All-America Cities Contest" held annually in the United States under the sponsorship of *Look* magazine and the National Municipal League. There is one major difference in the contests. In Brazil the awards are made to the officials of the local government showing exceptional progress instead of to a citizen group, although citizen groups in several cases have originated the entries.

New Electrical Appliances Always Ahead of House Wiring

THE NATIONAL sponsorship of the Adequate Wiring Movement includes Edison Electric Institute, International Association of Electrical Leagues, National Association of Electrical Distributors, National Electrical Contractors Association and the National Electrical Manufacturers Association. The funds are provided by NEMA.

The major problem in the electrical industry is the hampering of the development of electrical markets due to the inadequacy of wiring installations in a vast majority of homes. This is true of practically all homes that are 10 years old or more, and even the major percentage of new homes, including those currently being built.

New free publications include a leaflet, "Facts About Electric Wiring for the Home," and a manual on the subject.

The extension of the Adequate Wiring Movement from the residential to the commercial and industrial fields is NEMA's current program. A number of manufacturers have initiated national advertising promoting adequate wiring.

Realizing their stake in the adequate wiring effort, electrical leagues and bureaus, public utilities, electrical contractors, architects, electrical distributors and electrical dealers are backing these campaigns with strong support. United States Rubber is, of course, firmly endorsing this program and an effort will be made in 1956 to tie in whenever possible our advertising and sales promotion activities with this movement.

R. H. TURNER, *Advertising Manager*
Electrical Wire and Cable Dept.
United States Rubber Company
New York 20, *N. Y.*

REPAIR BROKEN MAINS IN 15 MINUTES!

One-man job . . . any pressure . . . terrific economy! Not only splices main, but *sealed gasket* absorbs future traffic jar or frost heaving! Refer to page 8 of our new Catalog GW. M. B. Skinner Co., South Bend 21, Indiana.

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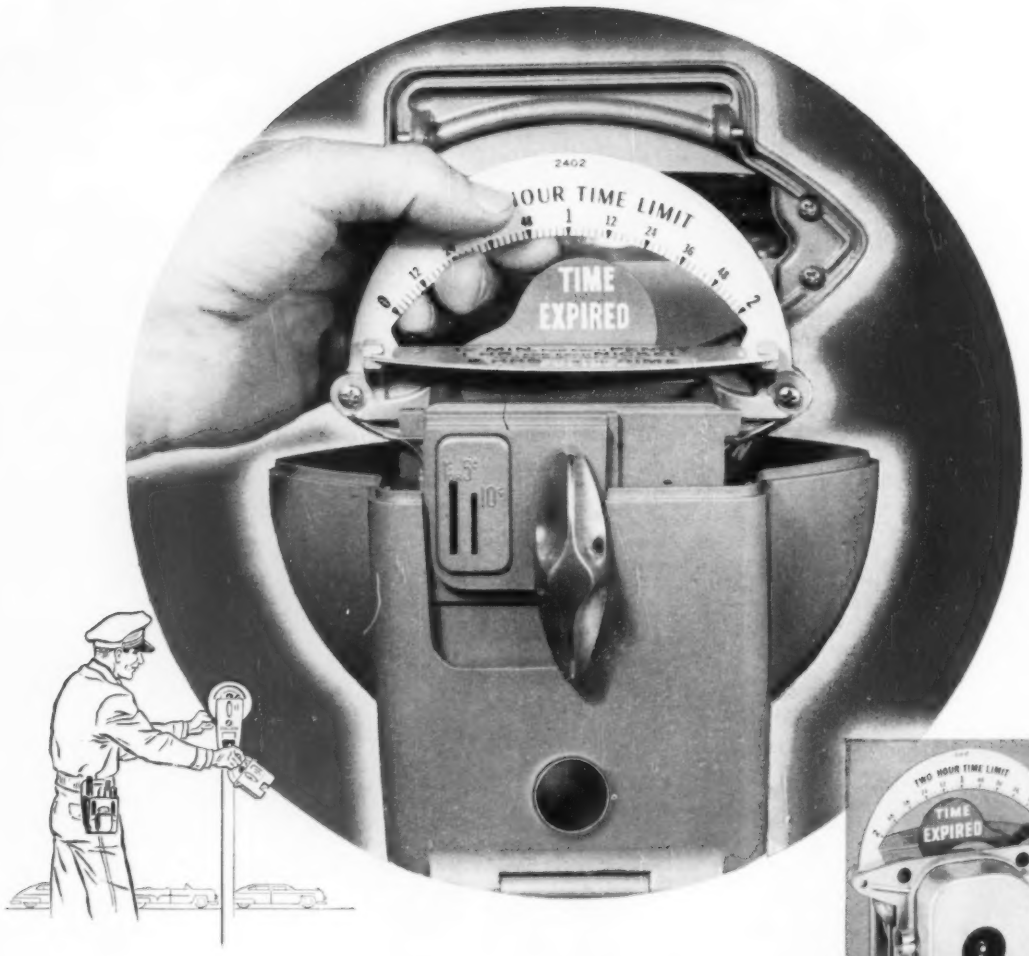

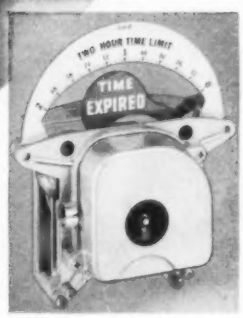

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to lower maintenance costs

Choose *The* DUNCAN-MILLER "60" with the simplest and most rapid method of mechanism removal or exchange.

Ease of access to all mechanism components for general or preventative maintenance purposes is especially welcomed by servicemen everywhere, particularly in inclement weather.

Thanks to DUNCAN-MILLER engineering, substantial economies in service time and expense result from this built-in DUNCAN BONUS FEATURE.

Write today.

DUNCAN PARKING METER CORP.

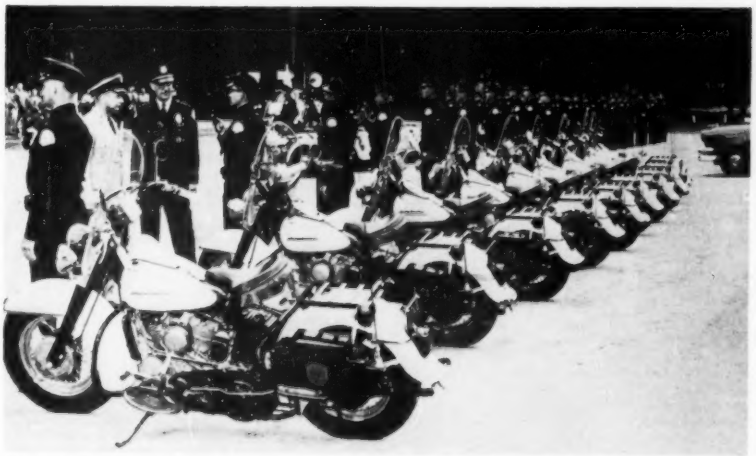
835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS — FACTORIES: HARRISON, ARKANSAS & MONTREAL, P. Q., CANADA

Manufacturers of fully automatic and manual parking meters.

SKINNER-SEAL SPLIT COUPLING CLAMP

Public Safety

Police Motorcycles Busy In Riverside, Calif.



Colonel G. F. Friederichs of the United States Air Force and Police Chief J. A. Bennett inspect the motorcycle division of the Riverside, Calif., police department.

SHOWN here is an inspection of police personnel and equipment, in connection with a "Citizens' Budget Tour." The tour, arranged by the municipality, was in the nature of a review of the "Riverside Plan of Capital Improvements." Several hundred interested citizens toured the city in school buses during the morning. Police inspection was held at noon and was followed by lunch in Fairmount Park.

Fleet Size

Our motors are all Harley-Davidson, and we have 12 solo cycles and 5 servicars. Four of the latter are used in parking enforcement; one is used by our parking-meter repairman.

The city area is 40 square miles. We have a total of 1,833 Park-O-Meters in service: 1,300 on streets in the downtown area; 343 on municipally owned parking lots; 200 in the Arlington business district, which is 7 miles from downtown.

Between these areas is the Magnolia Center business district which is not metered but which has considerable "chalk stick" enforcement, as does the fringe areas of the downtown business district, the high school, and college area.

Steady enforcement of these widely scattered areas and the heavy concentration of meters in the downtown area makes the use of this equipment a must. The units also patrol the footpaths of our parks on Sundays and holidays when parking is not enforced. All units, solo and three-wheel, are three-way-radio equipped and are thus available for any type of police service.

Our solo squad is comprised of one sergeant and 12 patrolmen, and their prime mission is traffic control and enforcement. With many miles of streets and highways to police, this squad is hard pressed even though supported by two Traffic Investigation cars and the regular radio patrol cars. Our even climate makes it possible for us to keep these cycles on patrol practically 100% of the time, year-round.

We are midway between Los Angeles and Palm Springs (about 50 miles from each) and 30 miles each way east and west from the mountain and beach resorts. Very heavy per capita motor vehicle registration in this area is a challenge trafficwise.

Our Council this fiscal year authorized a survey by the Traffic Division of the International Association of Chiefs of Police for improving police traffic supervision, which has recently been completed. The report recommended three additional men and cycles to the enforcement squad, eight accident investigators, one safety education officer, and other miscellaneous personnel; a total increase of 21 over present strength.

Our city has placed in the finals in the National Municipal League competitions for the past two years, and we believe that we have a forward-looking and progressive municipal government, capably administered by our City Manager, Oren L. King. Come out and see us some time.

J. A. BENNETT, *Chief of Police*
Riverside, Calif.

* * *

WHITE FIRE APPARATUS is recommended by the central purchasing agency advisory committee of Springfield, Ill. "They can be better seen at night," the committee advised City Purchasing Agent Joseph F. Gerzin. Specifications have just been completed for two fire engines.

* * *

Bells in the Firemen's Homes

FIRE bells have been installed in the homes of the 55 volunteer firemen, the department driver and 12 of the 28 members of the emergency squad who are not firemen, by the Borough of Chatham, N. J. The New Jersey Bell Telephone Company billed the borough $250 for installation of the system and $50 a month for the necessary leased lines to the firemen's homes.

This new system is operative 24 hours a day, while the regular fire siren is operative from 7 a.m. until 10 p.m.

Informative Catalogs - Yours For The Asking!

To obtain any of the following catalogs, write directly to the manufacturers or use the Post Card on the insert following Page 50

Water-Works Equipment

154 *Catalog W-96* describes a complete line of dependable water-works products, including curb boxes, check and relief valves, drill machines, compression stops, and service fittings. Also discussed are floor stands, goosenecks, meter stops and regulators. Copies of the new catalog may be obtained from MUELLER CO., DECATUR, ILL.

New Steam Cleaner Cuts Maintenance Costs

155 Hypressure Jenny, a new portable steam cleaner, will cut costs and improve the efficiency of any municipal maintenance program. This economical machine cleans everything — from street-name signs and painted curbing to trucks, tunnel walls and sewage equipment. It will also sanitize and deodorize refuse trucks and thaw frozen pipe and hydrants. Write the HOMESTEAD VALVE MFG. CO., HYPRESSURE JENNY DIV., P. O. BOX 46, CORAOPOLIS, PA.

Emergency Floodlights Turn On and Off Automatically

156 Install Big Beam emergency lights in schools, hospitals, office buildings and municipal plants. They provide instant automatic floodlighting whenever regular circuits fail, and are shut off automatically when current is restored. *Form No. AEL-655* describes five Big Beam models along with suggested uses and installation data. Write U-C LITE MFG. CO., 1050 W. HUBBARD ST., CHICAGO 22, ILL.

Fast, Easy Way to Mark Centerlines

157 A variety of line-marking machines ranging from small, hand-operated models to big truck-mounted units for larger municipalities are available from THE KELLY-CRESWELL CO., XENIA, OHIO. These machines feature diaphragm-operated striping guns, efficient pressure cleaners, and special air curtains. Controlled traction assures uniform film distribution, and makes it easy to apply a straight line. Write for details.

Controls Water Filtration Automatically

158 Installed in your municipal filtration plant, Hagan control and meter components may be used to measure and control rate of flow, loss of head, settling basin level, clearwell level, filter washing, and chemical feeding. Systems incorporating these components may be designed for every plant need, from control of a single function to automatic operation of the entire plant. For *Bulletin MSA 127*, write HAGAN CORP., PITTSBURGH 30, PA.

Penetrates Rust to Protect Metal Surfaces

159 How Rust-Oleum coatings, applied over rusted surfaces, penetrates through the rust to the bare metal surface, is explained in a 30-page report prepared by technologists of the Battelle Memorial Institute in Columbus, Ohio. For your copy of *The Development of a Method to Determine the Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating into Rust Coatings on Steel Specimens*, write RUST-OLEUM CORP., 2980 OAKTON ST., EVANSTON, ILL.

New Truck-Mounted Crane Plus Attachments

160 Cities can get the new "Quick-Way" truck-mounted crane in a variety of sizes, including 4-, 8- and 10-ton models, and a new heavy-duty 12½-ton unit. Numerous attachments are available for special municipal jobs. These include a trench hoe, crane, shovel, dragline, clamshell, pile driver and magnet. For additional data, write "QUICK-WAY" TRUCK SHOVEL CO., DEPT. 126, 2401 E. 40th AVE., DENVER 5, COL.

New Four-Wheel Drive Tractor-Shovels

161 Three new "Payloader" tractor-shovels—Models HU, HH and HO—feature four-wheel-drive, torque converters, and a pressure-controlled hydraulic system. Each model is designed to boost output and lower the cost of digging, scooping-up, loading, moving and piling a variety of materials. For additional data, write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

A New Approach to Refuse Collection

162 The Nu-way rubbish removing system involves the use of a twin-boom loader arm mounted on a cab-over-engine tractor, specially designed trash receptacles, and a sanitary trailer-van. The new loader arm picks up the receptacles, swings them overhead, and dumps the contents through an opening in the top of the van. The refuse is then compacted toward the rear of the van for easy dumping. For further details, write the TOWNER MFG. CO., SANTA ANA, CALIF.

Stops Corrosion

163 Protect water tanks, sewage treatment equipment, gratings, piping and conduit against the damaging effects of rust and corrosion with Amercoat protective coatings. The complete Amercoat system offers you a full line of rust-resistant coatings, specific recommendations for individual problems, detailed surface preparation and application specifications, and on-the-job assistance. Write AMERCOAT CORP., 4809 FIRESTONE BLVD., SOUTH GATE, CALIF.

Street-Name Signs of Porcelain Enamel

164 Available in any combination of colors, these sturdy street-name signs are constructed of heavy-guage iron with a "Lifetime" porcelain enamel finish. This efficient finish will not fade, peel or chalk. It has also been applied to warning signs, regulatory signs, and red STOP signs. Write U. S. PORCELAIN ENAMEL CO., TRAFFIC SIGN DIV., 4635 E. 52nd DR., LOS ANGELES 22, CALIF.

Beat Icy Streets with Calcium Chloride

165 Two simple ways to prevent traffic accidents caused by icy streets are presented by the COLUMBIA-SOUTHERN CHEMICAL CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA. The first method consists of covering the ice with abrasives that have been treated with 3-C Columbia calcium chloride. Secondly, this efficient chemical may be applied directly to the ice for quick melting. Write for literature.

These Water Pumps Cost Less to Maintain

166 The advantages of economy, dependability and ease of installation are combined in these efficient Johnston water supply pumps. The sturdy vertical pumps are able to withstand years of hard usage with minimum down time for repairs. For a new, illustrated bulletin, write the JOHNSTON PUMP CO., BIN "K," DEPT. AC-125, PASADENA 15, CAL.

Remote Metering & Control for Water, Sewage Plants

167 Remote metering of flow, level, pressure, temperature, gate position and weight, and remote control of pumps, chemical feeders, valves and levels are made possible by Chronoflo Telemeters. These meters eliminate distance in water filtration and sewage treatment plants. They are described in *Bulletin 230-H4A*, from BUILDERS-PROVIDENCE, INC., 358 HARRIS AVE., PROVIDENCE, R. I.

Easy Way to Collect Parking Meter Fines

168 More and more communities are benefiting from this simple, courteous and effective method of assessing, collecting and accounting for parking meter fines. Called the Traf-O-Teria System, it assures the voluntary, prompt payment of a higher percentage of fines; saves on clerical, police and court time; and establishes good will for city officials. How the system operates is explained in literature from TRAF-O-TERIA SYSTEM, EL DORADO, KANS.

One Portable Engine, Many Accessories

169 A complete line of portable power tools is available for use with the new Mall 2-cycle gasoline engine. These include a chain saw, brush cutter, high-pressure pump, concrete vibrator and earth auger. The lightweight engine powers them all dependably and economically. For a free *Gas Engine Tool Catalog*, write MALL TOOL CO., 7735 S. CHICAGO AVE., CHICAGO 19, ILL.

Portable Hoist Loads Trucks Quickly

170 Powered by a truck battery, the Pacific portable hoist will lift ½-ton quickly and efficiently, simplifying a variety of municipal operations. The economical unit features adjustable boom height and length, a 360° swing, and remote push-button control. It is easily moved from the truck body to a shop dolly in minutes. Write the BURTCH-AELL HEATING CO., HOIST DIV., 2944 S. E. POWELL, PORTLAND 2, ORE.

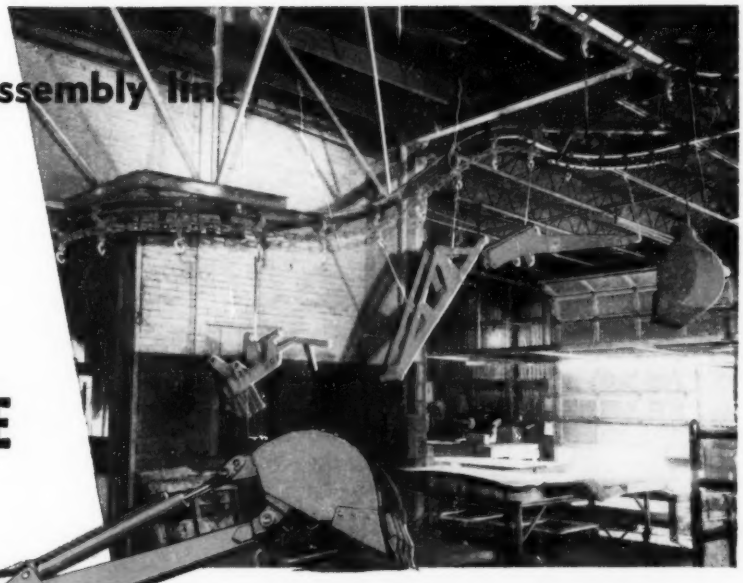
For Safer Traffic Signal Systems

171 A tight connection is the first requirement of any electrical circuit or operation. Faulty connections in traffic signals cause many accidents. Diamond Grip terminals make safe connections, cost little, and are easily applied. Ask about a kit of terminals and connectors suited to your traffic signal requirements. Write AMERICAN PAMCOR, INC., 131 HILLCREST AVE., HAVERTOWN, PA.

(Please turn to page 28 for more Bulletins)

Right off the assembly line

THE NEW DAVIS BACK-HOE



BETTER 9 WAYS

This new quality-built Davis Back-hoe is an outstanding performer on jobs normally expected of a back-hoe. But, because of the following features, it does jobs that the ordinary back-hoe couldn't tackle... provides for unequalled operator comfort and vision... and it sells for a price that's far less than the average back-hoe.

1. It digs at right angles to either side of the tractor... to the rear... or at any spot in between.
2. Operator revolves with boom... always faces work without twisting.
3. Comfortable, well-padded seat with foot rest lessens operator's fatigue.
4. Digs 13 feet deep... dumps all the spoils to just one side, if desired.
5. Operator can always see where he is digging... even at maximum depth.
6. Can be detached or attached in less than five minutes... without sacrifice to rigidity.
7. Won't upset because extra wide frame has two individually controlled hydraulic stabilizers.
8. Full-floating pins used throughout. Lifetime sealed ball bearings used in king post.
9. Mass produced on assembly line basis for exceptionally low cost.

MAKES A THOROUGHBRED COMBINATION WITH THE DAVIS LOADER

The Davis Back-hoe is sold in combination with America's quality front-end tractor loader... the loader that is designed to make you more money because it provides for faster, smoother, more efficient action. Get complete details on the simplified attachment of the Davis Back-hoe to the Davis Loader, and find out why you pay less than you would expect for this equipment.

Sold and Serviced Nationwide by Better Dealers

SEND FOR FREE LITERATURE AND NAME OF DEALER

Please send me literature on the Davis Back-hoe.... and Davis Loader.... to fit a.....tractor.

NAME.....

ADDRESS.....

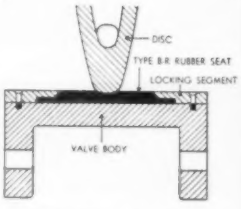
MID-WESTERN INDUSTRIES, INC.

1009 S. WEST ST. DEPT. A WICHITA, KANSAS

Be Sure of DROP-TIGHT CLOSURE

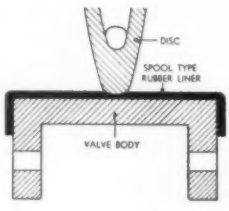
Valve with Rubber Seat

In this Rockwell butterfly valve the stainless steel edge of valve disc presses at 90° into thick, precision-molded Type B-R rubber seat, which is clamped in position by removable metal locking segments. Shaft of stainless steel (or other metal). Bearings—lifetime, heavy duty graphite-lubricated, sleeve type. No corrosion or contamination. Meets AWWA specifications for 25, 50 and 125 p.s.i. butterfly valves.



Valve Rubber-Lined

Valve with rubber spool liner—natural or synthetic, hard or soft—vulcanized and cemented to valve body. Preferred where fluid may affect cast iron or fabricated steel construction.



Other Advantages

- Minimum Restriction to Flow
- Self-Cleaning—No Debris-Collecting Pockets
- Compact • Lighter Weight
- Require Less Space
- Easier to Install

W. S. Rockwell Butterfly Valves are made in sizes from 4" to 144"; cast iron, fabricated steel or alloy construction. Furnished with any manual or automatic operator.

W. S. ROCKWELL COMPANY

ROCKWELL SINCE 1888 BUILT

BUTTERFLY VALVES • SLIDE VALVES • AUTOMATIC VALVES

2706 ELIOT STREET • FAIRFIELD, CONN.

Sales Representatives in Principal Cities

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

New Truck-Mounted Hydraulic Crane

172 As a lifting crane, the H-5 Hydrocrane has a rated capacity of nine tons; as a clamshell excavator it carries a ½-yard bucket. This all-hydraulic unit can also be equipped with a 39-inch lifting magnet. It is designed for mounting on a conventional motor truck, eliminating the need for a costly crane carrier. For *Bulletin H-5-1*, write BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS.

Takes the Dust Out of Fluoridation

173 To assure dust-free fluoridation, specify an Omega fluoridizer, a dependable fluoride feeder with a dust-free bag loading hopper. This efficient mechanism is described and illustrated in a new bulletin from the OMEGA MACHINE CO., 358 HARRIS AVE., PROVIDENCE 1, R. I.

Street-Lighting Poles

174 Only an occasional coat of paint is needed to keep National tubular steel poles looking bright and attractive. These sturdy standards are functional as well as attractive. Their slimness avoids traffic hazards, and they are sufficiently strong to support the tightest trolley wires. Write the NATIONAL TUBE DIV., UNITED STATES STEEL CORP., PITTSBURGH, PA.

Meters for Small Service Lines

175 NEPTUNE METER CO., 19 W. 50th ST., NEW YORK 20, N. Y., recommends its Trident Style 3 meter for 1½- and 2-inch service lines. This dependable meter is accurate down to exceptionally low flows, and handles high flows easily. It is economical to maintain, simple to repair, and will provide your city with maximum water revenues. Write for literature.

Asbestos-Cement Products

176 Information to aid you in selecting the right material to control heat, cold, sound, motion and corrosion, and to protect against fire, weather and wear, is contained in the new *Johns-Manville Products Handbook*. This 52-page guide includes data on Transite asbestos-cement pipe; packings and gaskets; insulations and refractory products; and pipe protection materials. It is available from JOHNS-MANVILLE, 22 E. 40th ST., NEW YORK 16, N. Y.

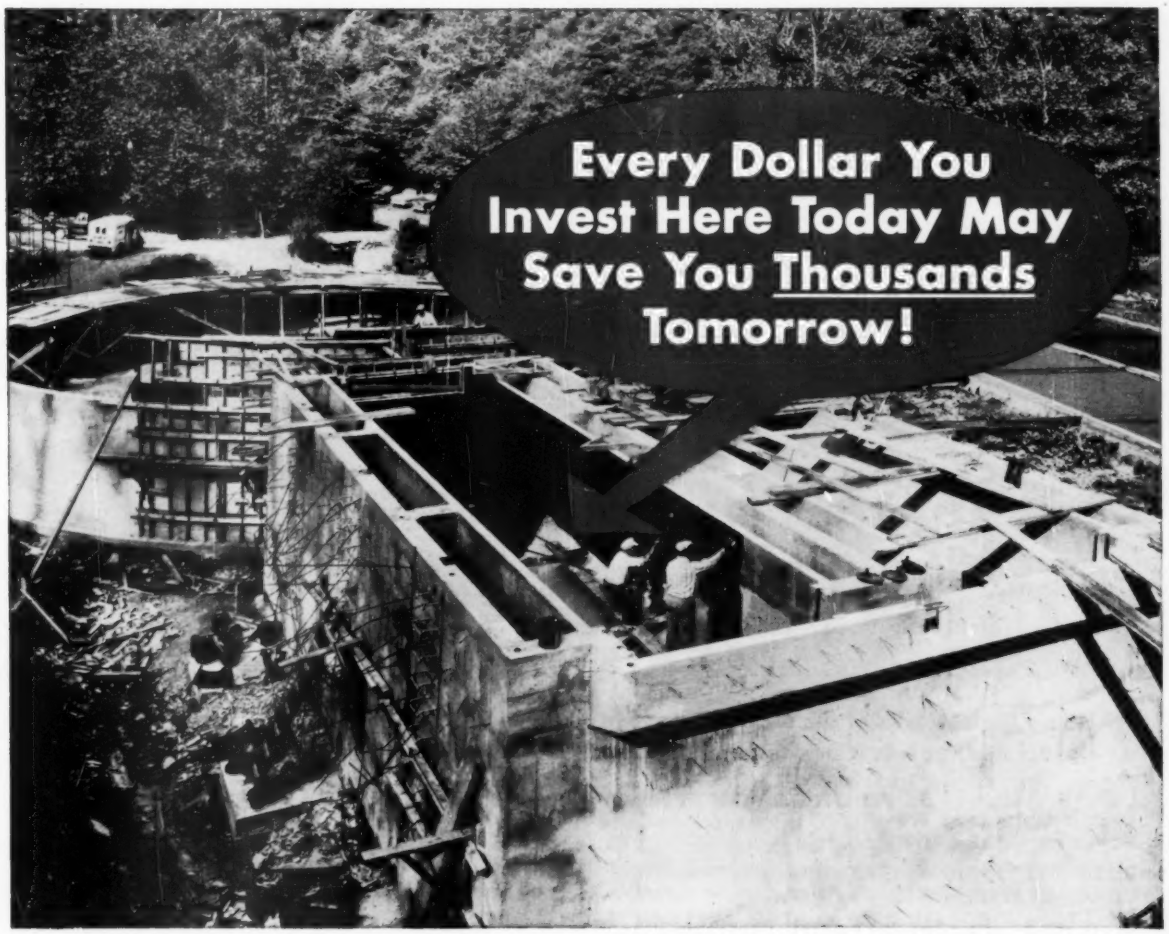
Small Sized Snow Blower

177 Removing snow from sidewalks, parks and parking lots is a fast, easy operation when you use a Maxim Snow Thrower. This efficient machine, available in a variety of models, "eats its way into the snow and whirls it away." It is fully described in literature from THE MAXIM SILENCER CO., DEPT. TW, 84 HOMESTEAD AVE., HARTFORD, CONN.

Protective Paint Coatings Have Rubber Base

178 Easily adapted to masonry, wood and metal surfaces, Parlon Chlorinated Rubber Paint is formulated to withstand the corrosive effects of chemicals and salt water, making it an ideal maintenance coating for sewage plant equipment, the interior of water tanks, and for exterior finishes for masonry buildings. For further information on these rubber-based coatings, write HERCULES POWDER CO., 997 MARKET ST., WILMINGTON 99, ILL.

(See page 33 for more Bulletins)



MAINTAINING and replacing sewage disposal equipment is too costly today to gamble on half-way corrosion control methods. And the only practical way to be *sure* of adequate protection is through the use of durable, heavy-duty coatings.

Pitt Chem Coal Tar Coatings fill that bill perfectly. In plant after plant, sewage engineers have seen how these tough, impervious coatings protect iron, steel and concrete against severest sewage corrosion. They can show you how easy they are to apply, by roller, spray or brush. And they can show you how *economical* they are, compared to the "on-again-off-again" protection of less durable coatings.

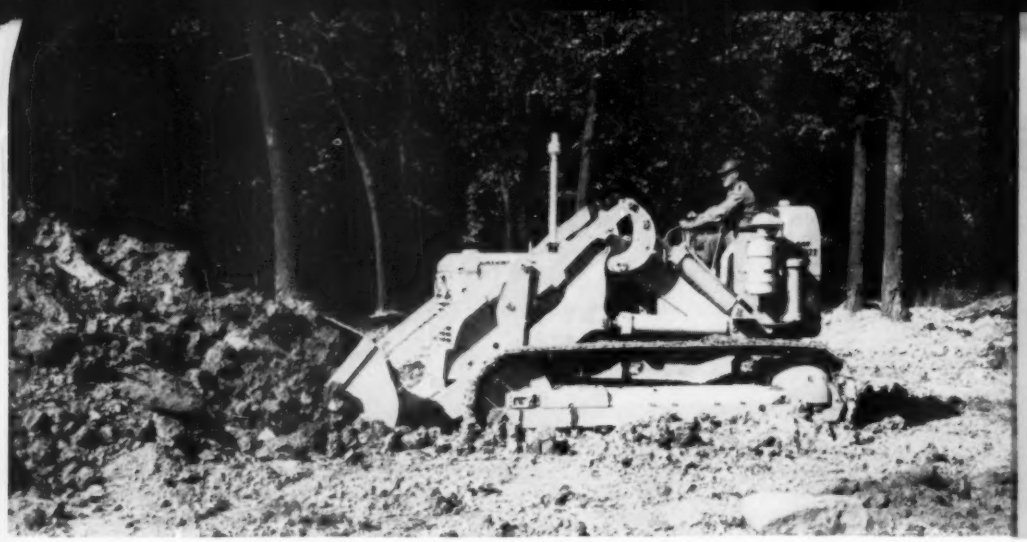
Our files are full of case histories on the use of *Pitt Chem* Coatings to solve sewage corrosion problems. Call for a *Pitt Chem* man to discuss them with you . . . and to show you how to add years of life to the equipment of *your* plant.

Typical Places Where PITT CHEM® Can Safeguard Your Sewage Plant Investment

- ★ Concrete Surfaces
- ★ Concrete Pipe
- ★ Digestor Dome Interiors
- ★ Structural Steel Parts
- ★ Trickling Filters
- ★ Sludge Drying Beds
- ★ Steel Pipe
- ★ Settling Tanks

W&D 5694

COAL CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON



1

Ample power and traction to "bury" the bucket.

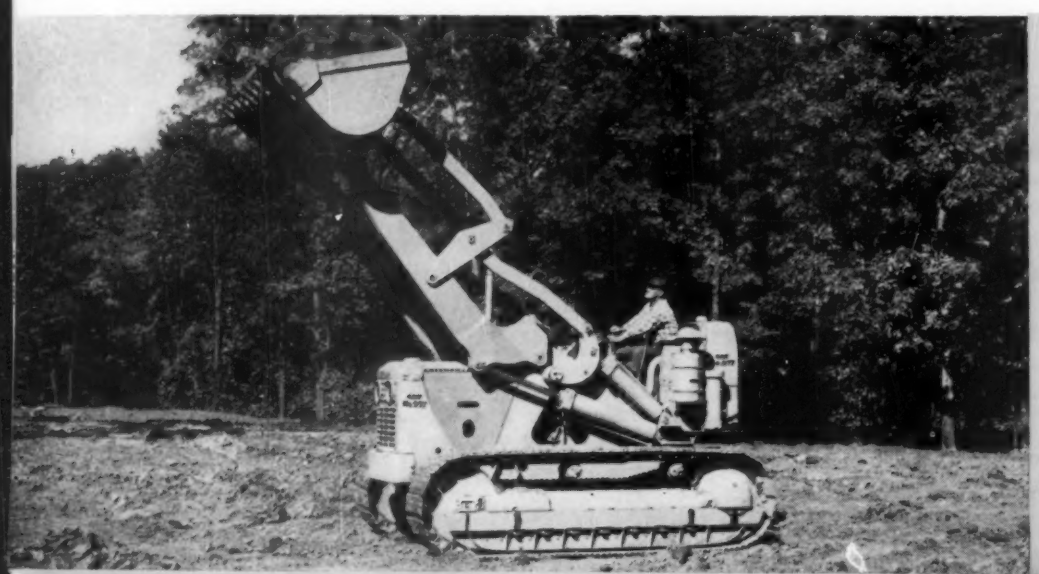
CATERPILLAR ANNOUNCES

THE NEW NO. 977

Here's the new boss of the excavator-loaders...the new Caterpillar No. 977 Traxcavator. The No. 977 has important new features which greatly increase productivity and earning power.

FEATURES OF THE NO. 977 TRAXCAVATOR

- 96-in., 2¼-cu.-yd. bucket.
- 100 HP CAT® Engine, with ample power to "bury" the bucket and lift big loads.
- Newly-designed bucket tips back 40° at ground level to retain heaping loads.
- More than 11½ ft. of dumping height make it easy to load any truck or railroad car.
- Steel bumpers on lift arms allow rapid jarring of bucket, and 50° discharge angle helps to empty sticky materials fast.
- Automatic kick-outs put bucket in "hold" position at maximum height and position bucket for digging on next pass. Easier operation and faster cycle times.
- Advanced hydraulic system, with pump protected by full flow filter.
- Hardened, spool-type operating valves located in large tank, protected from dirt or damage.
- Long-lived, trouble-free oil clutch.
- Fast, one-hand bucket operation. High seat for comfort and visibility.
- Five forward speeds to 7.4 MPH; four reverse speeds to 7 MPH.
- Each track controlled by heavy-duty dry multiple disc steering clutch and contracting band brake.
- Tools for any job: 3-yd. bucket for light material; 9-tooth quarry bucket; heavy-duty bucket; skeleton rock bucket; log and lumber fork.

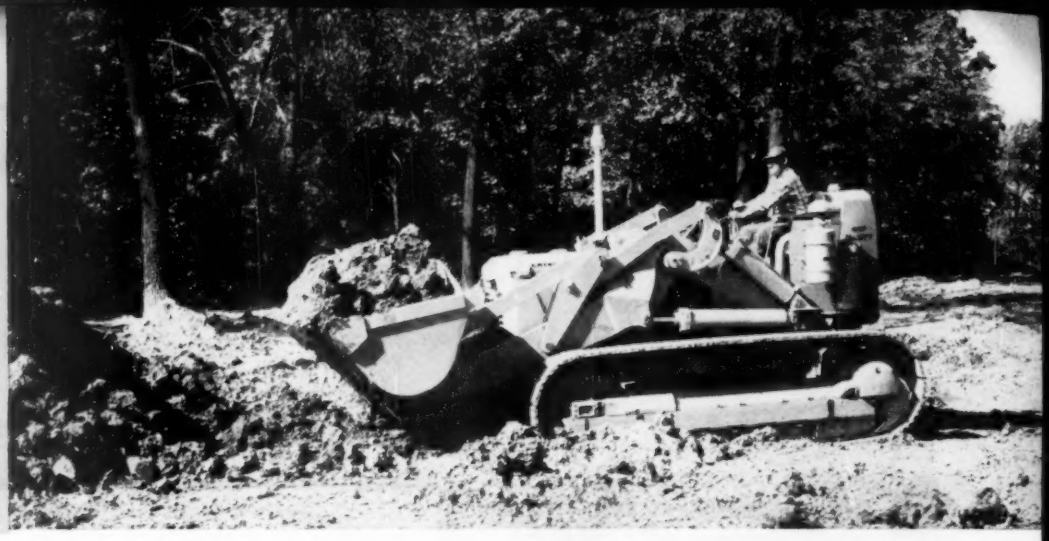


3

High lift, with over 11½ ft. of dumping height.

2

40° tip back at ground level to hold load.



TRAXCAVATOR*

MAIL TODAY!

CATERPILLAR TRACTOR CO., Peoria, Illinois, U.S.A.

Please send full information about the new No. 977 Traxcavator.

*Name*_____

*Company*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

Now three sizes of Traxcavators are available for all your excavating and material-handling needs. They're *unit-built* machines, so efficient that you'll find they match or excel competitive equipment with nominally greater bucket sizes. You can choose the right Traxcavator for your job from the No. 933 (1 cu. yd.)—the No. 955 (1½ cu. yd.)—or the No. 977 (2¼ cu. yd.).

Let your Caterpillar Dealer show you how these new machines can make money and *save* money for you. Get complete information from him. Or mail the coupon.

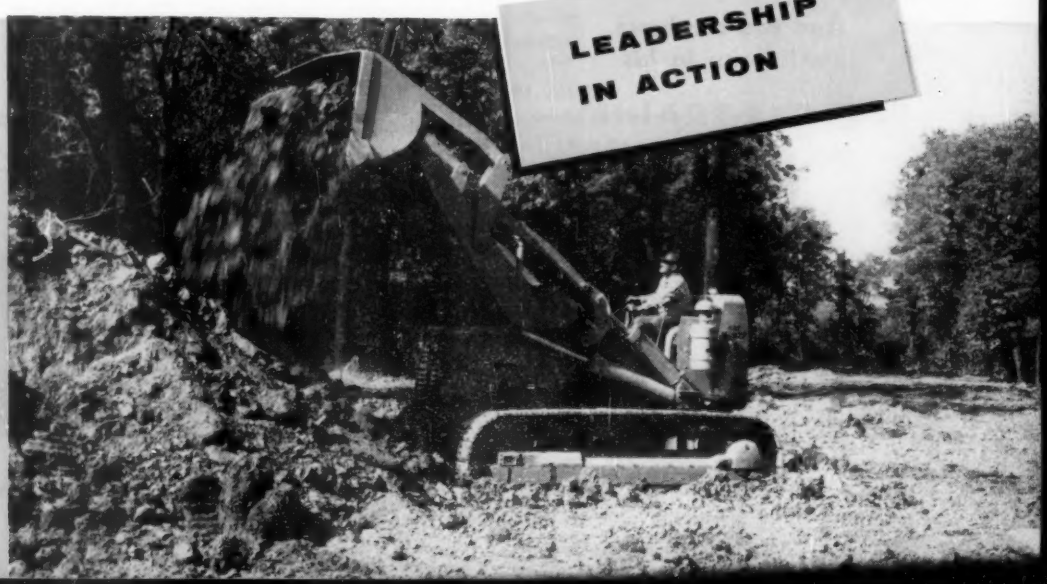
Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

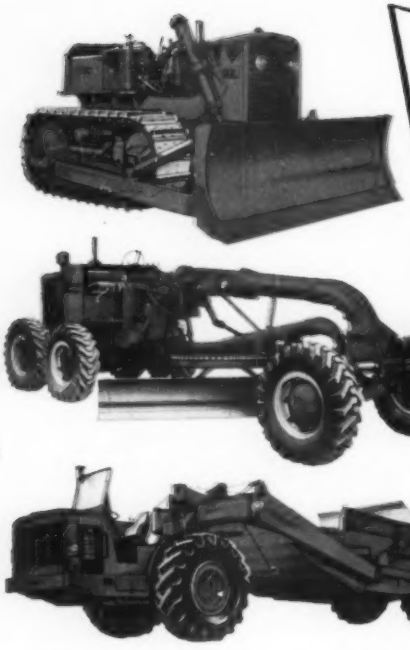
CATERPILLAR*

*Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

4

Fast, sure dumping of sticky materials.





ALLIS-CHALMERS CONSTRUCTION MACHINERY

SOLD *but not forgotten*

by your Allis-Chalmers dealer

When you invest in Allis-Chalmers construction equipment, you are getting far more than just a modern machine. Your dealer offers you the opportunity to do a better job at lower cost. He wants your equipment to give A-1 performance day in and day out. His reputation depends on it.

That's why your Allis-Chalmers dealer puts so much importance on good preventive maintenance practices . . . encourages you to take full advantage of his modern servicing facilities.

You're always sure of

TRUE ORIGINAL PARTS

from your Allis-Chalmers dealer

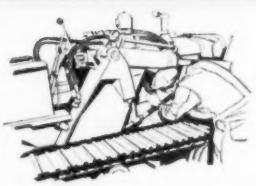
Parts made in the same factory, to the same rigid specifications as original equipment, are your assurance of getting top performance and long life. Treated, packaged and sealed against rust and dust, True Original Parts are stocked in quantity by each dealer to give you quick service close to your job.

And you can have confidence in his

FACTORY-TRAINED MECHANICS, FACTORY-APPROVED METHODS

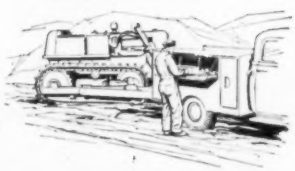
IN THE SHOP

Specialized facilities include factory-approved tools and all necessary equipment for complete service. Factory-approved methods are used to save you time and money, assure finest workmanship.



IN THE FIELD

Factory-trained servicemen are ready to help you, day or night. Their technical know-how and practical experience get the job finished fast . . . at lowest possible cost to you.



You can depend on your Allis-Chalmers dealer

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Lays Finished Curb Without Forms

179 With the Stephens-Canfield automatic curber cities can lay up to 1,800 feet of finished curb per day, without using forms. Only three men are needed to operate the machine. They simply mark the location, start the motor and fill the hopper. Compaction pressure does the rest. For full details and prices, write E. L. HARDIN ASSOCIATES, INC., SALISBURY, N. C.

Stops Sewage Odors

180 Grease and odor problems disappear when your municipal sewage disposal plant is treated the Bionetic way. Bionetic supplies odor consuming organisms and works quickly to eliminate grease and sludge from the collection system. A complete description of the Bionetic method may be obtained from RELIANCE CHEMICALS CORP., BIONETIC DIV., P. O. BOX 7724, HOUSTON 5, TEX.

Those Tapered Steel Poles

181 For nearly half a century streetlighting men have been installing "Union Metal" poles, until more than ½-million of them are in service in over 3,000 cities. A new 10-page booklet illustrates the manufacture of Monotube poles for outdoor lighting. If you would like a complete catalog on Monotubes, or additional pole information, write THE UNION METAL MFG. CO., CANTON 5, OHIO.

Playground Planning Simplified

182 The type, quantity and quality of recreation equipment needed for a public playground, and the adequacy and appropriateness of the space provided, are discussed in the new Porter equipment catalog. This firm manufactures a variety of dependable play structures, including swing sets, see saws, playground slides, and merry-go-rounds. Write THE J. E. PORTER CORP., OTTAWA, ILL.

Transmission Line Meters

183 It pays to keep an accurate log of the flows in any transmission line, two inches and over. You can do this by installing a Sparling meter in the line. These dependable units offer direct totalization, correct within 2%, without further instrumentation. They are described in *Bulletin 314*. Write SPARLING METER CO., BOX 3277, LOS ANGELES 54, CALIF.

Converts Bulky Brush Into Compact Chips

184 One man operating an M & M brush grinder can convert seven truckloads of brush into one truckload of chips quickly and economically. Brush or branches, up to 6 inches in diameter, are fed into the machine. These are chewed into small wood chips and automatically blown into a truck or spread on the ground. Write MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH.

Folding Tables

185 An economical folding banquet table, measuring 30 x 96 inches, features steel legs tipped with steel glides. The top and frame of the table may be varnished or left unfinished, as desired. For *Bulletin No. 14*, write THE MONROE CO., COLFAX, IA.

These Fire Hydrants Give Instant Service

186 Easy to install and economical to maintain, these swivel-joint fire hydrants work instantly to stop costly blazes. The water-carrying areas are generously sized for full flow and maximum pressure. Every point of friction is fully protected by at least one bronze surface. For a new 80-page catalog on hydrants, cast iron pipe and gate valves, write R. D. WOOD CO., PUBLIC LEDGER BLDG., PHILADELPHIA 5, PA.

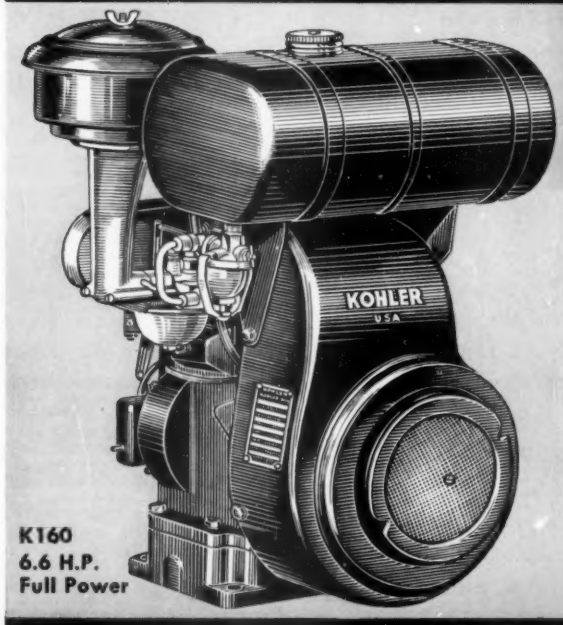
Operates Parking Lots Automatically

187 Under the Parcoa system, a simple card is the key to automatic parking lot operation. The card is inserted into an electronic device that controls entrance and exit gates. The gate opens automatically and remains open until the car is safely in the lot. This same operation takes place when the car leaves the premises. For full information, write PARKING CORP. OF AMERICA, 4619 N. RAVENSWOOD AVE., CHICAGO 40, ILL.

A Small Out-of-Sight Sewage Pump Station

188 This single pneumatic ejector sewage lift station is an engineered answer to sewer problems in small subdivisions, schools and factories in areas difficult to serve by gravity sewers. It is fast and easy to install and economical to operate. The underground installation eliminates the need for unsightly pump houses. For a new 100-page pump station data manual, write SMITH & LOVELESS, INC., DEPT. 10, P. O. BOX 8172, KANSAS CITY, MO.

(See p. 34 for more Bulletins)



K160
6.6 H.P.
Full Power

KOHLER ENGINES
4-CYCLE • AIR-COOLED

A Quality Engine for Quality Equipment

Short Stroke
- Less Friction and Wear
- More Power
- Longer Life

Easy Starting

K90.....2.5 to 3.6 H.P.
K160.....3.6 to 6.6 H.P.
K330.....7 to 11.8 H.P.
K660.....12 to 26 H.P.

Kohler Co., Kohler, Wisconsin
Established 1873

KOHLER OF KOHLER
PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

Up to 4 times the lifting capacity

Here the Hydrocrane eases a section of pipe onto a truck. Note how outriggers anchor the crane solidly to the ground — keep it level even on over-the-side lifts.

With Hydrocrane's Easily Set Outriggers

Four hydraulically operated outriggers that extend out and down in seconds not only multiply the Bucyrus-Erie Hydrocrane's lifting ability — but permit using a standard truck instead of an expensive crane carrier. With outriggers fully extended the Hydrocrane's lifting capacity is increased by as much as 4 to 1 on over-the-side lifts — where any crane's stability is lowest.

Outriggers an Operator Really Uses

Outriggers are individually controlled right from the operator's station, making it possible to level crane on uneven ground — without cribbing or blocking. Even with dozens of crane moves during a day, operators readily use outriggers because they're so easy to extend and retract.

Because the patented outriggers provide such solid stability, you can take full advantage of the Hydrocrane's precision hydraulic control — hold the crane steady for easy, rapid loading, hoisting and setting of pipe, valves, hydrants. Ask your Bucyrus-Erie distributor to show you with a demonstration on your own job.

69H55

BUCYRUS ERIE
South Milwaukee Wisconsin

75 YEARS OF SERVICE to Men Who Shape the Earth

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Use Chlorine Tablets in Swimming Pools

189 Easy-to-handle HTH tablets, containing 70% available chlorine, are quickly fed into swimming pool water with this efficient Hypochlorinator. The unit provides a convenient method of feeding available chlorine at rates which can be accurately controlled and quickly varied to cover a wide range of operating demands. It is available from OLIN MATHIESON CHEMICAL CORP., INDUSTRIAL CHEMICALS DIV., BALTIMORE 3, MD.

A Clean Burning Diesel Engine

190 Efficient burning of the heaviest residual fuels is assured with a Hamilton diesel engine. The diesel has a semi-hemispherical combustion chamber and an exclusive rotary valve and port design. These produce excess combustion air, large combustion volume, and high turbulence. The result is a clean exhaust and normal engine wear. Write BALDWIN-LIMA-HAMILTON, HAMILTON DIV., HAMILTON, OHIO.

Undertruck Scrapers Have Year-Round Use

191 In spring, summer and fall, Root undertruck scrapers may be used to maintain streets and roads. In winter, they bear down to remove snow and chisel off the ice. These versatile units are designed for truck capacities ranging from 1½ through 8 tons. They are fully described in *Bulletin* 333, from ROOT SPRING SCRAPER CO., 54 W. NORTH ST., KALAMAZOO, MICH.

One Parking Meter Takes Four Different Coins

192 A single coin slot on the Model H Park-O-Meter accepts four coin sizes —pennies, nickels, dimes and quarters. The meter is quickly convertible to permit parking periods from six minutes to 24 hours, at any rate of charge you select. It is easy to install and offers automatic, one-hand operation. Write MAGEE-HALE PARK-O-METER CO., COMMERCE EXCHANGE BLDG., OKLAHOMA CITY 2, OKLA.

A Better Joint for Sewer Pipe

193 It's fast and easy to join sections of clay pipe when you use the new Wedge-Lock. All you do is lubricate the plastic joints with water, graphite solution, or a special adhesive sealant, and push them together. The "double-ball" type joint locks pipe in place—and is permanently root-proof and infiltration proof. Get full details from THE ROBINSON CLAY PRODUCT CO., 65 WEST STATE ST., AKRON, OHIO.

Red STOP Signs

194 Red STOP signs in five standard models—plain, with reflectorized letters, or featuring all-over reflectorization—may be obtained from THE MIRO-FLEX CO., INC., 1824 E. SECOND ST., WICHITA, KANS. The signs consist of rounded Series C, white letters on a red background. With the exception of an aluminum model, they are all made of zinc-coated, bonderized steel. Literature and prices on request.

(See p. 42 for more Bulletins)

NEW 2500 SERIES MANUALLY-OPERATED HYDRAULIC LADDER

Flyladder Lock For Added Safety
Operating Handle For Lifting Ladder
Operating Handle For Lowering Ladder Automatically
New Convenient Location For Rotation Crank
Center Mast Counterbalance Spring For Fast, Easy Elevation
New Lightweight Tubular Supports For Greater Strength
New Cylinder Design For Fast, Easy Elevation
Globe-Type Needle Valve For Releasing Oil From Bottom of Cylinder
New Pump For Two Elevating Speeds
Worm and Gear Rotation For Easy Turning

NEW WAY TO GET UP IN THE WORLD

The Holan 2500 Manually-operated Hydraulic Ladder does things no other mechanical ladder can do. With a low-pressure hydraulic system and center mast counterbalancing, the 2500 raises and lowers fast and easy—in a matter of seconds. Elevating locations are infinite; and the angle of elevation can be changed with ladder fully extended . . . safely and without effort.

Other new features of this newest Holan work-simplifier include tubular ladder supports for lighter weight and greater strength; rotation crank located at rear for easier turning, better view and maximum clearance between ladder and body side; and an optional duo-level platform that assures level footing even at lowest angles.

Write for information about the latest addition to industry's biggest and most versatile aerial ladder family.

Holan 2500 Manually-operated Hydraulic Ladder with new duo-level platform. Available for 24′, 28′ and 32′ platform-to-ground heights.

Line construction bodies for light to heavy-duty. Crew compartments optional. Efficient tool compartments and drawers.

Service bodies for chassis up to 1½ ton. Lengths, 72″, 75″, 84″, 90″, and 102″.

Power derricks designed for front or rear mounting. Capacities to 12,000 lbs. Handle poles to 75 feet.

Ladders to 40′ with all phases completely hydraulic. Pump actuated by P.T.O. or separate engine drive with electric starter. Also, expertly-engineered mechanical ladders to 32′.

Portable hydraulic and mechanical earth borers. Augers for 8″ to 20″ diameters, depth to 8′.

Hydraulic towers from 17′ to 30′ with rotary, stationary, or transverse platforms. Exclusive box-girder telescoping mast.

J.H. HOLAN CORPORATION

4100 WEST 150TH STREET
CLEVELAND 11, OHIO

OTHER PLANTS:
HOLAN Thrift Line CORP., Griffin, Georgia • J. H. HOLAN CORP., Phoenix Div., Arizona
BRANTFORD-HOLAN LIMITED, Brantford, Ontario

THE NAME THAT MEANS WORK SIMPLIFICATION

the all new "QUICK-WAY"

GREATER POWER AND CONTROL FROM BUILT-IN BALANCE

CONSTANT QUIET POWER

Rugged as the Rockies

"QUICK-WAY"- 50	"QUICK-WAY"- 80	"QUICK-WAY"-100	"QUICK-WAY"-125
¼ Yd. 5 Ton	⅜ Yd. 8 Ton	½ Yd. 10 Ton	½ Yd. 12½ Ton

and . . . Five new *"QUICK-WAY"* Carriers

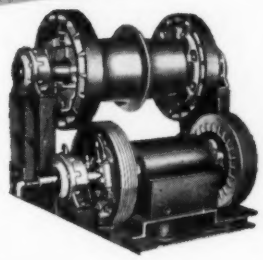
THE MOST COMPLETE LINE IN THE SMALL SHOVEL FIELD

HOLAN Thrift Line CORP., Griffin, Georgia • J. H. HOLAN CORP., Phoenix Div., Arizona
BRANTFORD-HOLAN LIMITED, Brantford, Ontario

THE NAME THAT MEANS WORK SIMPLIFICATION

to 30' with rotary, stationary, or transverse platforms. Exclusive box-girder telescoping mast.

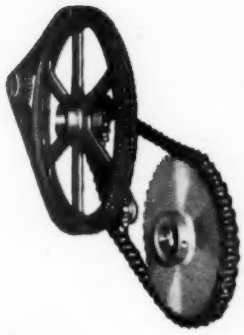
with MORE Big Shovel FEATURES



MAIN ASSEMBLIES

Power up and down boom standard on all models.

High tensile steel shafting. Any one main assembly removable without tearing down others. Positive control shaft centers for 100% clutch and brake action.

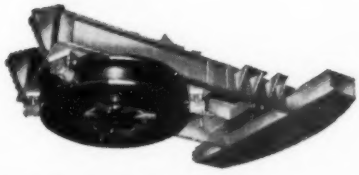


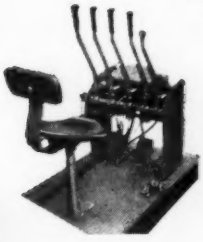
ALL CHAIN & SPROCKET DRIVE

Machine-cut steel and cast iron sprockets with compact, high-speed, heavy-duty roller chains give positive power, reduced noise, and greater flexibility under every operating condition. Oil and dust tight cases.

AIR COOLED DRUMS

Large size, louver-ventilated, ductile iron clutch and brake drums, finned-ventilated swing assembly drums . . . specially designed for cool, continuous running at top efficiency.



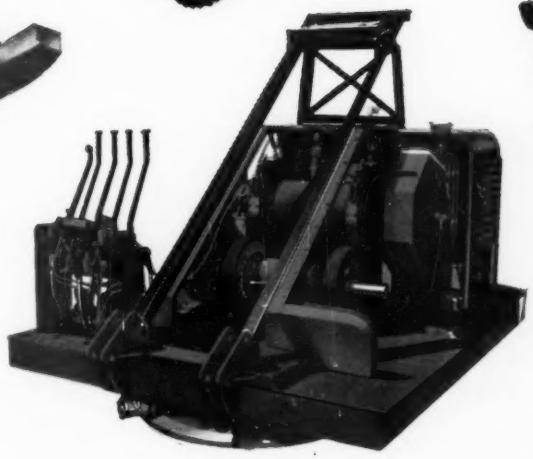


CLUTCH CONTROLS & HYDRAULIC SYSTEM

Smooth, positive minimum-effort control from new hydraulic system. New design control lever locks.

BULL GEAR, HOOK ROLLERS & MACHINE FRAME

Heavy, fully machined, hard steel rollers and roller path. Large, sturdy cast steel and electrically welded machinery frame. Perfectly balanced design assures minimum stress and absolute alignment to shafts, bearings and swing table gear.



ADVANCE DESIGN LUBRICATION

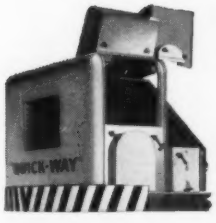
Daily grease fittings centrally located on cab panel. Intermittent grease fittings easily accessible. Positive grease and dirt seals at all revolving points. Force-feed, filtered, circulating lubrication on all chain and sprocket drives and on main shaft bearings. Main bearings also running in oil.

ANTI-FRICTION BEARINGS

Self-aligning, anti-friction bearings on all high-speed, continuous, rotating shafts and drums. Special long-life, alloy bronze bearings on swing rollers and center rotating sleeve.

COMFORTABLE FULL VISION CAB

All operating controls, including instrument panel and lock throttle, conveniently located in front of operator. Safety glass windows on all sides and top insure full vision—sliding and hinged windows provide maximum ventilation.



HINGED PANELS FOR EASY MAINTENANCE

Hinged, fold-out panels all around for quick, easy maintenance and adjustments.

PRECISION BUILT, RUGGED, FULLY CONVERTIBLE

. . . the new "QUICK-WAY" models, designed to heavy-duty specifications . . . with more big shovel features than any other in the small shovel field . . . have perfect BUILT-IN balance that guarantees precision control, greater lifting power, longer life and more work per horsepower. Write today for complete information, or see your "Quick-Way" distributor for a FREE demonstration.

With the Famous Money-Making Line of
"QUICK-WAY" ATTACHMENTS

Trench Hoe, Crane, Shovel, Dragline, Clamshell, Pile Driver, Magnet, and many other tools for special types of jobs.

"QUICK-WAY" TRUCK SHOVEL COMPANY

Denver, Colorado — A Penn-Texas Subsidiary

Mail Coupon Today
For FREE Information

"QUICK-WAY" TRUCK SHOVEL CO.
Dept. 126—2401 East 40th Ave.
Denver 5, Colorado, U.S.A.

Please send complete information on the ALL NEW "QUICK-WAY" and the NEW "QUICK-WAY" carriers—check model number or numbers 50 ( ), 80 ( ), 100 ( ), 125 ( ).

Name _____

Address _____

City _____ State _____

Cuts digging day to 3 hours with powerful ½-yard Hydro-Trencher

Here the Hydro-Trencher digs a ditch for a new sewer line. Hydraulic stabilizer blade also acts as a backfiller blade. By simply turning the bucket around you can convert the trencher to a swing loader. Hydraulic trip loading bucket is also available.

This Oliver 88WT Hydro-Trencher is working on a city sewer project—locating a manhole 8-feet deep through a 2½ by 5-foot street opening.

By hand this is a full day's work for three men. The Hydro-Trencher cut the time to three hours! Working in cramped quarters is duck soup for the 88WT. Powerful hydraulic down pressure, 170° bucket rotation and maneuverable, dual-circuit control let you dig in the most inaccessible places... work delicately around pipes, foundations without fear of damage.

With the 88WT you can slice through rocky soil, roots, hard Clay—dig all the way to 12 feet. The two complete hydraulic systems on the Hydro-Trencher give you unbelievable control—let you perform any two operations at once without loss of pressure.

Owners of Hydro-Trenchers enthusiastically report savings in time and money on many jobs formerly requiring hand labor or larger equipment. Get the low-down on the most profitable, maneuverable trencher in the field—the Oliver 88WT. See your Oliver Industrial Distributor for a demonstration.

THE OLIVER CORPORATION

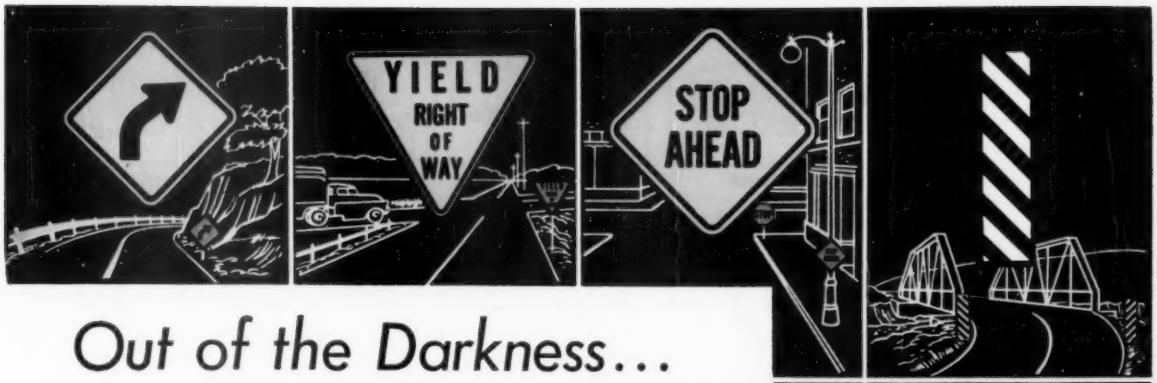
400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors

special types of jobs.

Address

City State



Out of the Darkness...

STRONG · BRIGHT · CLEAR

GROTELITE REFLECTIVE SHEETING!

Grotelite SS Sheds Water Like A Duck's Back!

Before You Place Another Order For Reflective Material, Shouldn't You Examine These Facts on Grotelite SS!

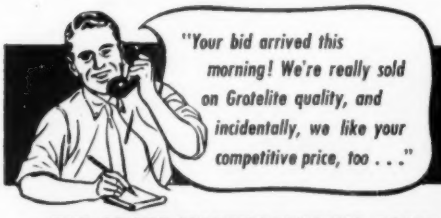
1. Outstanding Target Value!
2. Rugged, Smooth Surface!
3. Entirely Weatherproof!
4. Important Savings!
5. Extra Years of Reflective Service!

Through the dangers of the night, in rain, snow or sleet, Grotelite Reflectorized Signs shine out with long-range brilliance and clearness. Grotelite SS is entirely waterproof and weather-proof . . . self-cleans in the rain. It withstands extremes of temperature and humidity, remains in excellent condition after years of service. Whether headlights are bright or dimmed, this improved reflective sheeting insures maximum sign-to-car warning . . . in *any* weather!

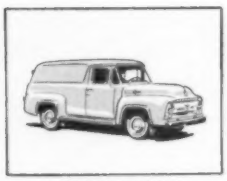
GROTELITE GIVES THE MOTORIST TIME TO BE SAFE!

Today's highspeed traffic requires long-range reflectivity. It's too late to be safe, after the car reaches the sign. Grotelite provides maximum warning where it counts . . . at the greatest distance from the point of danger!

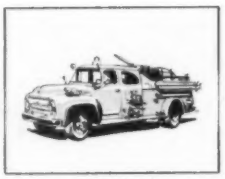
Send Today for Catalog No. 754-T . . . and for Complete Facts!


"Your bid arrived this morning! We're really sold on Grotelite quality, and incidentally, we like your competitive price, too . . ."

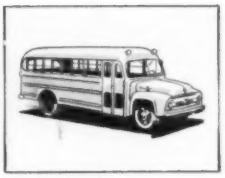
THE GROTE MANUFACTURING COMPANY, INC. • Established 1901 • Bellevue, Kentucky • Opposite Cincinnati



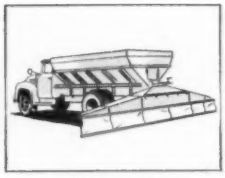
SERVICE PANEL



FIRE TRUCK



SCHOOL BUS



LIME SPREADER

UTILITY TRUCK

For any Public Works job —

Best for miles of extra life, with extra-strong truck chassis

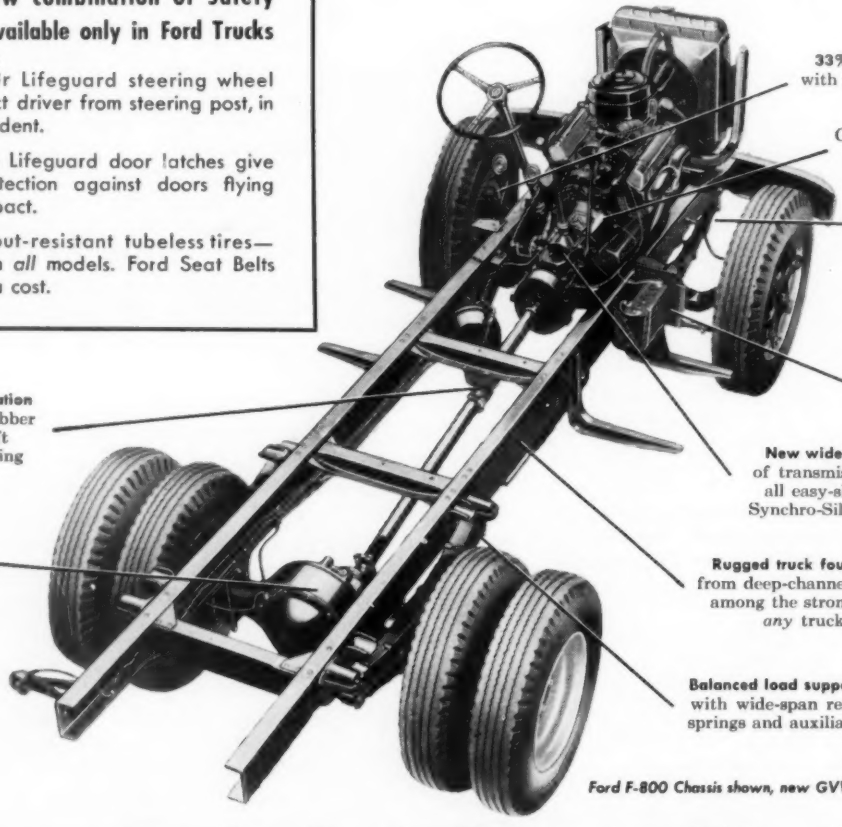
'56 FORD TRUCKS have extra strength in every vital chassis part. New, huskier axles and longer-lived brakes and clutches on many models mean even more service miles for the trucks that *outlast every other leading make* (as studies by insurance actuaries prove).

With a new combination of Safety Features available only in Ford Trucks

Deep-center Lifeguard steering wheel helps protect driver from steering post, in case of accident.

Double-grip Lifeguard door latches give added protection against doors flying open on impact.

New blowout-resistant tubeless tires—standard on *all* models. Ford Seat Belts at low extra cost.



33% longer brake life with new thicker linings

Long-lasting Gyro-Grip clutch with low pedal pressure

Easy-action front springs with double-wrapped rear eyes for added safety

Faster starts, longer life with new 12-volt electrical system

80% less vibration with thick-rubber prop shaft center bearing

New wide choice of transmissions—all easy-shifting Synchro-Silent type

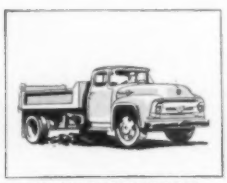
Strong, one-piece banjo-type rear axle housing

Rugged truck foundation from deep-channel frames, among the strongest on *any* trucks

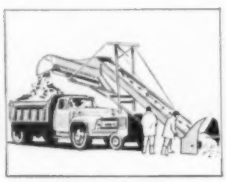
Balanced load support with wide-span rear springs and auxiliary

Ford F-800 Chassis shown, new GVW 24,000 lbs.

Every major body builder builds for Ford

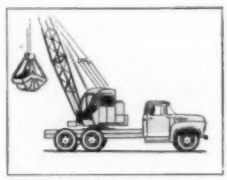


DUMP WITH SCRAPER

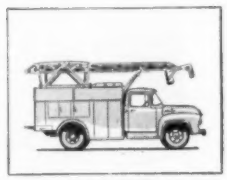


DUMP TRUCK

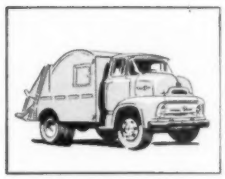
DUMP WITH SNOW PLOW

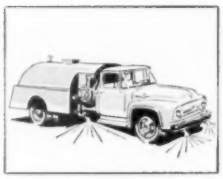


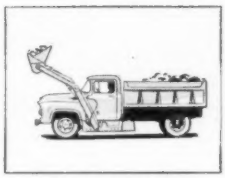
TRUCK-MOUNTED CRANE

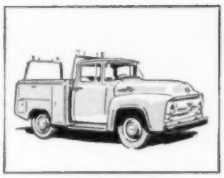


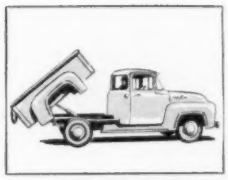
LINE TRUCK


REFUSE COLLECTOR


STREET FLUSHER


REFUSE COLLECTOR

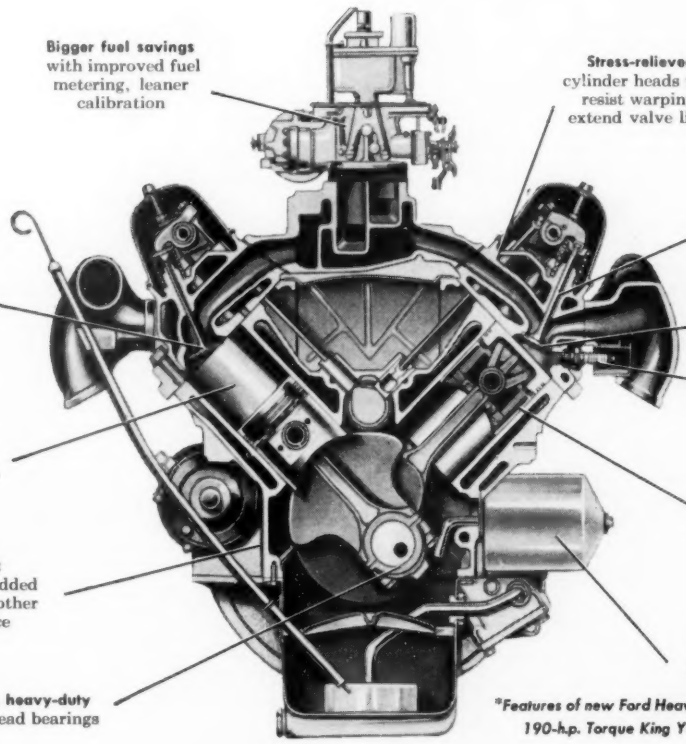

LIGHT UTILITY


LIGHT-DUTY DUMP

Ford Trucks work the best!

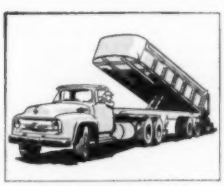
Best for economical operation, long life and low upkeep, with more USABLE power, more heavy-duty haul-ability

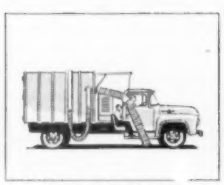
'56 FORD TRUCKS have up to 26% more *usable* (net) horsepower—to get more jobs done easier. They give you *more power per dollar*—proved by comparisons of net horsepower and suggested list prices of *all* trucks! Prove it to yourself by putting a '56 Ford Truck to work on your job.

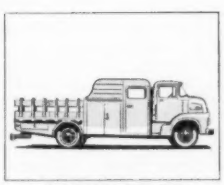

Bigger fuel savings with improved fuel metering, leaner calibration
Stress-relieved cylinder heads that resist warping, extend valve life*
225° cooler valves —new sodium-cooled exhaust valves with tungsten-cobalt facing*
Durable, self-cleaning free-turn valves
Anti-fouling 18-mm. spark plugs with new long-life electrodes
Expansion-controlled pistons with integral steel struts
Full-flow oil filter to clean *all* the oil for longer engine life
Self-Sealing dish-type intake valves for tighter fit*
Short Stroke design in *every* engine for greater gas savings, longer life
Deep-block structure for added strength, smoother performance
Durable heavy-duty copper-lead bearings

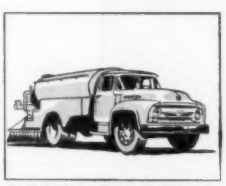
**Features of new Ford Heavy Duty engines . . . 190-h.p. Torque King Y-8 shown.*

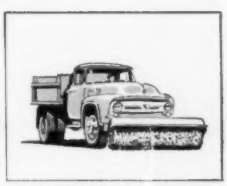
Your Ford Dealer will be glad to help you


TRAILERIZED DUMP


STREET CLEANER


FORESTRY SERVICE


BITUMINOUS DISTRIBUTOR


DUMP WITH BRUSH

- Aluminum or Steel
- Reflective or Plain
- Delivery from Stock

Cataphote offers you a complete slate of traffic and street name signs with all standard legends and meeting State and Federal specifications.

Choose brilliant Cataflex Reflective Coating or famous Cataphote Reflector Buttons to reflectorize for 'round-the-clock effectiveness.

Rely on Cataphote quality and experience to satisfy all your standard street and highway safety marking needs. For recommendations and quotations on special signs, let us know your problem.

Write today for literature

AS-1 and SS-1.

Cataphote CORPORATION

Toledo 10, Ohio and Jackson, Miss.

Serving Traffic Needs With
- CATAFLEX SIGN KITS
- CATAPHOTE TRAFFIC SIGNS
- CATALINE REFLECTIVE STRIPING
- CATAPHOTE REFLECTIVE BEADS

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Economical Power

195 If your city is considering new power in its plan to modernize or expand, it will pay you to investigate Enterprise engines. This company offers dependable equipment in the field of heavy-duty diesel, dual fuel, tri-fuel and spark ignited gas engines, 73 to 7703 hp. For full details, write ENTERPRISE ENGINE & MACHINERY CO., 18th & FLORIDA STS., SAN FRANCISCO 10, CALIF.

Convert Sewage Sludge Into Useful Fertilizer

196 If your city is considering the construction of a new sewage disposal plant, investigate the C-E Raymond flash drying system. With it, you can dry the sewage sludge and make it into a fertilizer, or you can burn it up completely. The system is highly flexible; you can do both concurrently if you wish. Write COMBUSTION ENGINEERING, RAYMOND DIV., 1315 N. BRANCH ST., CHICAGO 22, ILL.

Equip Gate Valves with New Rubber Seal

197 M & H gate valves are now available with a new O-Ring seal at the top of the stem. This type seal replaces the conventional packing, stuffing box, and gland-follower design. It is tight, leakproof, and requires minimum maintenance. For complete information, write M & H VALVE AND FITTINGS CO., ANNISTON, ALA.

Dependable Parking Meters

198 Whether your city's metered parking plans call for new installations, increasing parking areas or replacing less efficient meters, Mi-Co will solve your problems. Dependable Mi-Co meters operate in any weather—cold or hot—feature fewer moving parts, and are easily serviced. Get full facts from MI-CO PARKING METERS, P. O. BOX 668-A, COVINGTON, KY.

Fast, Low-Cost Way to Clean Sewers

199 This new 3-wheel, power sewer cleaner, the OK Champion, cleans sewers quickly with minimum hazards to workmen and equipment. The efficient unit is fully described in a new circular from the CHAMPION CORP., 4716 SHEFFIELD AVE., HAMMOND, IND.

Protects Water Pipe & Sewage Equipment

200 A sure way to guard against rust, corrosion and tuberculation attacking your steel water lines and sewage treatment equipment, is to apply Bitumastic protective coatings. Bitumastic enamels are quickly applied to provide lasting protection. They are available from the KOPPERS CO., INC., TAR PRODUCTS DIV., 1222-T, PITTSBURGH 19, PA.

Installs Pipe Under Pavement

201 A fast, easy way to install pipe varying from 2 through 24 inches in diameter under streets and roadways, is with the Hydrauger, an efficient earth boring tool that operates without traffic interference. The unit will bore up to 225 feet or more, per setting, depending on earth formation. It is available from the HYDRAUGER CORP. LTD., 681 MARKET ST., SAN FRANCISCO, CALIF.

Speeds Street Maintenance

202 An efficient machine for conditioning bituminous streets, roads and airport runways is the Littleford-Clarkmoore Asphalt Road Heater Planer. Completely eliminating costly hand labor, the unit will plane a path up to 81 inches wide, from a skin cut to a depth of one inch, at speeds varying from 8 inches to 88 feet per minute. It travels at speeds up to 20 mph. Write LITTLEFORD BROTHERS, INC., 500 E. PEARL ST., CINCINNATI 2, OHIO.

New Heavy-Duty Motor Grader

203 Low cost and high performance ratings are combined in the new Allis-Chalmers Forty Five motor grader. This dependable machine can develop 120 hp, weighs 23,800 pounds, and assures fast, accurate operation on a variety of municipal construction and maintenance jobs. Features include balanced power, weight and traction, and a new Roll-Away mold-board. Write ALLIS-CHALMERS MFG. CO., CONSTRUCTION MACHINERY DIV., MILWAUKEE 1, WIS.

Traffic Line Markers and Traffic Signs

204 *Catalog W-56* describes the latest developments in striping machines and equipment for streets, highways and airports. It introduces several additions to the Wald line of "Reflecto-Liner" products. These include the Model 9 striper, a 2-way action "Airomixer" for any type paint, and an "Automatic Sign Shop." The sign shop sprays undercoatings and reflective coatings on traffic signs, then sets them firmly by infrared heat. Write WALD INDUSTRIES, INC., HUNTINGDON, PA.

Controls Street Lights Automatically

205 Turn street lights on and off automatically with a Lumatrol photoelectric light switch. The low-cost Lumatrol is easily installed on any luminaire, pole or arm, with a plug-in feature. Further, it integrates available light from all directions, minimizing location problems. A detailed technical bulletin on the lightweight switch will be furnished by MICRO BALANCING, INC., GARDEN CITY PARK, L. I., N. Y.

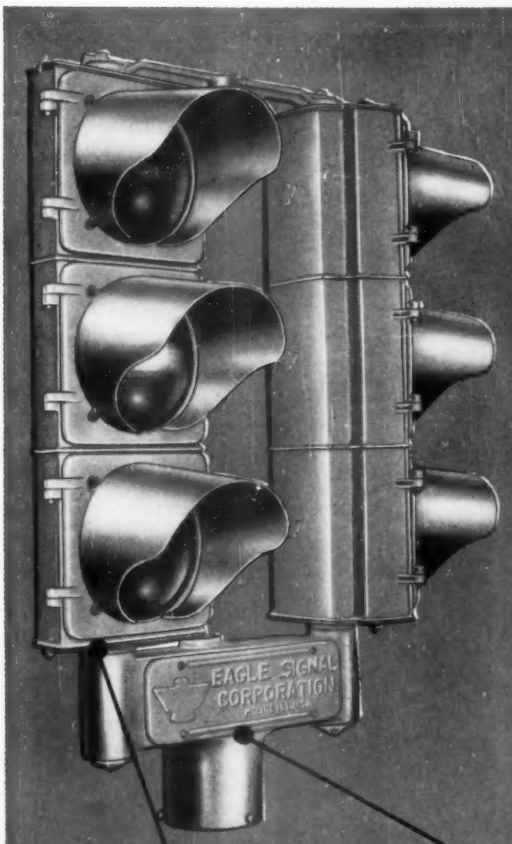
New Sludge Heater Speeds Digestion

206 Installed in your sewage treatment plant, the new Heatx provides adequate heating for fast, efficient sludge digestion. This external sludge heater is assembled on a common base with a hot water boiler, heating water circulating pump, and a control panel housing all operating and safety controls. Details on the application, construction and operation of the Heatx are contained in *Bulletin No. 24S82*. Write WALKER PROCESS EQUIPMENT INC., AURORA, ILL.

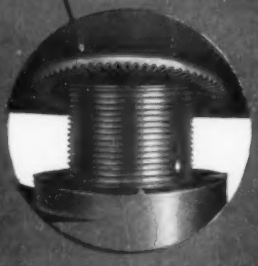
Fire Alarm and Police Signal Cables

207 The light weight and small diameters of Laytex-insulated cables make them ideal for fire alarm and police signal systems, and for supervisory control service. The rubber insulation may be safely installed underground, in damp or wet locations. It is easily applied to the wire, and does not require the wall thicknesses used in other types of insulation. Literature will be furnished by the U. S. RUBBER CO., ELECTRICAL WIRE & CABLE DEPT., ROCKEFELLER CENTER, NEW YORK 20, N. Y.

(See p. 44 for more Bulletins)



EAGLE S23CTCH SENTRY
TWO-WAY TRAFFIC SIGNAL WITH
KING SIZE TERMINAL COMPARTMENT



SERRATION POSITION LOCKING FEATURE

Neither wind nor pranksters can turn signal after once locked into position. 72 fine teeth or serrations are integrally cast into top and bottom of signal face that fits snugly into 4 notches on terminal bracket to assure positive locking. Signal can be locked in 5 degree increments to point in any direction.

new

EAGLE SENTRY

TRAFFIC SIGNAL with new horizontal terminal compartment

Here is a traffic signal of smart, modern appearance that includes many advantageous construction and design features. New offset construction assures greater stability and compactness — yet lighter weight than conventional signals of curved or multi-surface design. The EAGLE SENTRY Traffic Signal can be locked into any position when used with post top terminal compartment bracket (as shown) or with other serrated brackets.

EAGLE UK 823
TWO-WAY TERMINAL COMPARTMENT

Eagle's NEW post top horizontal terminal compartment bracket for two or three way signals, provides quick easy access to all signal wires. Wide opening gives ample room for tools to reach all twelve terminals.

MAIL COUPON TODAY

EAGLE SIGNAL CORPORATION
Municipal Division
Moline, Illinois

Eagle equipment saves lives . . . saves time

EAGLE SIGNAL CORPORATION
Municipal Division, Dept. AC-156
MOLINE, ILLINOIS

Please send free Bulletin A10-1 containing complete data on Eagle Sentry Traffic Signal

NAME AND TITLE _____

ORGANIZATION _____

FULL ADDRESS _____

You Get All These Advantages With Ferri-Floc

FERRIC SULFATE

You can depend on Ferri-Floc to give smoother, more efficient and trouble-free coagulation. Whatever your specific water treatment problem may be, you can depend on Ferri-Floc to do the job adequately, efficiently and economically. Ferri-Floc is a free-flowing granular salt which can be fed with a few modifications through any standard dry feed equipment. It is only mildly hygroscopic, thereby permitting easy and safe handling as well as storage in closed hoppers over longer periods of time.

1. Coagulation over wide PH ranges, color, turbidity and manganese removed.
2. Rapid floc formation and rapid settling.
3. Increased filter runs.
4. Quality effluent low in iron and aluminum.
5. Excellent taste and odor control.

WATER TREATMENT
Ferri-Floc coagulates surface or well waters, and it aids taste and odor control. It is effective in lime soda-ash softening, and is adaptable to treatment of practically all industrial water or wastes.

SEWAGE TREATMENT
Ferri-Floc coagulates waters and wastes over wide pH ranges. It provides efficient operation regardless of rapid variations of raw sewage, and is effective for conditioning sludge prior to vacuum filtration or drying on sand beds.

SULFUR-DIOXIDE HIGHEST QUALITY SO_2

SULFUR-DIOXIDE is effectively used for dechlorination in water treatment and to remove objectionable odors remaining after purification.

COPPER SULFATE will control about 90% of the microorganisms normally encountered in water treatment plants more economically than any other chemical.

COPPER SULFATE

FREE NEW BOOKLET: Let us send you without charge a 38-page booklet that deals specifically with all phases of coagulation. Send postal card to—

TENNESSEE CORPORATION

617-629 Grant Building, Atlanta, Ga.

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Protects Water Pipe

208 Applied to the inside of water pipe, a cement-mortar lining eliminates corrosion and tuberculation, increases flow capacity, reduces leakage, and cuts pumping costs. The cement-mortar lining of pipes in place is handled quickly and economically by the CENTRILINE CORP. For a free descriptive brochure, address the company at 140 CEDAR ST., NEW YORK 6, N. Y.

Makes a Tight Joint in Water Mains

209 Four reasons why cast iron water mains are best joined with Leadite cement are advanced by THE LEADITE CO., GIRARD TRUST CO. BLDG., PHILADELPHIA 2, PA. This efficient self-caulking material melts easily, goes farther, and saves time, labor, and the cost of material. Most important, it makes an exceptionally tight joint that improves with age. Write for details.

Aluminum Traffic Masts and Arms

210 The traffic masts and arms made by Pfaff & Kendall feature a "one-piece" aluminum construction that is easy to install, won't rust or corrode, and never needs maintenance. These and other advantages are fully described in the new *P & K Catalog*. For your copy, write PFAFF & KENDALL, 84 FOUNDRY ST., NEWARK 5, N. J.

Steel Swimming Pools

211 KOVEN STEEL SWIMMING POOLS, INC., will help your community choose the right size and style swimming pool to meet public requirements. The pools offered by this company are constructed of heavy welded steel, and are available in both indoor and outdoor models. Leakproof, they are easily maintained with an occasional coat of paint. Write the company at 154-A OGDEN AVE., JERSEY CITY 7, N. J.

Fire Hydrants

212 A full and unobstructed waterway for maximum flow from main to nozzle is provided in every Iowa fire hydrant. These dependable units are easy to maintain, without special tools. All internal working parts are removable through the top of the hydrant, for periodic inspection. Get full facts from the IOWA VALVE CO., OSKALOOSA, IA.

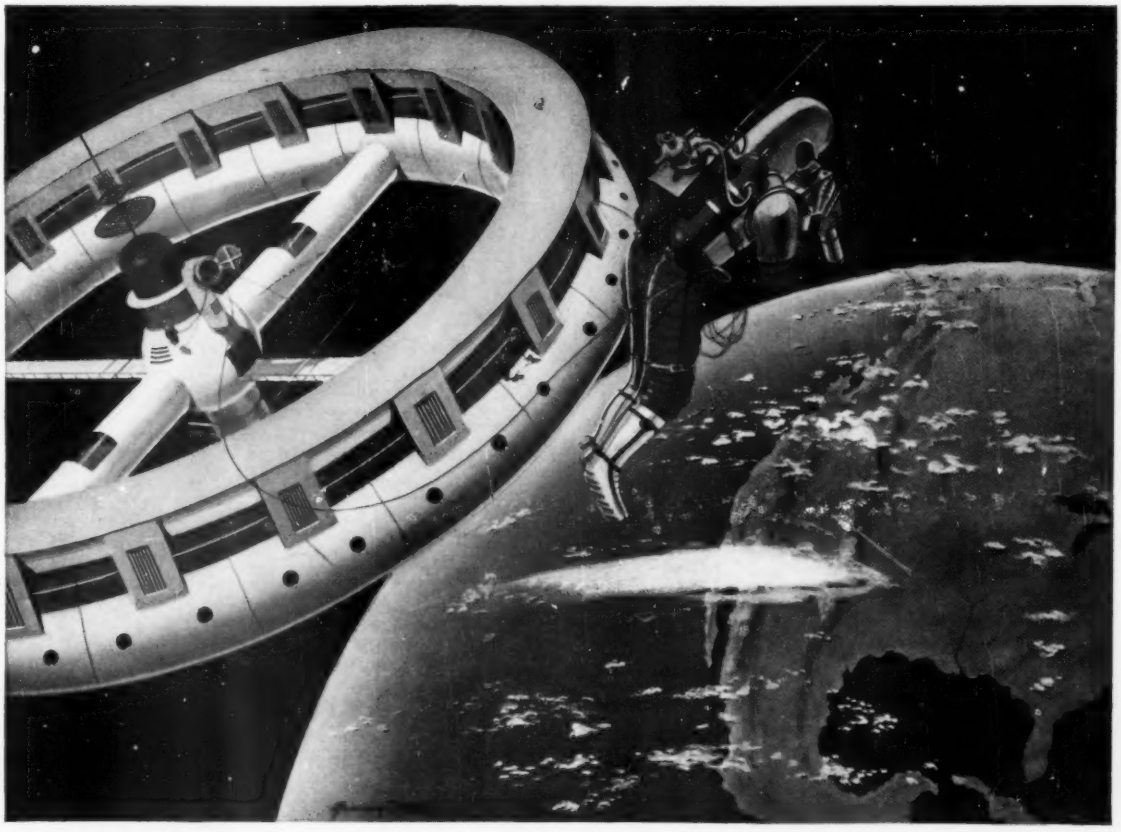
Traffic Signal Lamps

213 The first requirement of a traffic signal is that it be seen. The V-Beam traffic lamp, rated at 4,000 to 6,000 hours of burning life, is specifically designed to meet this basic requirement. For information on how this efficient lamp meets the standards of the Institute of Traffic Engineers, write DURO-TEST CORP., NORTH BERGEN, N. J.

New "Servi-Cars" Aid Traffic Control

214 Mounted on a Harley-Davidson Servi-Car, today's traffic officer can cover more territory, shift locations to meet changing conditions, and work longer hours with less fatigue. These small, efficient vehicles feature ample space to carry a radio, a complete first-aid kit, and a fire extinguisher. They are available from the HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

(See p. 46 for more Bulletins)



A SPACE STATION . . . a thousand miles high in the stratosphere slowly circling the globe . . . observers near its rim studying cloud formations and the earth's atmospheric conditions below . . . this may be our weather bureau of the future.

100 years from now... A MAN-MADE "MOON" MAY BE OUR WEATHER BUREAU

OUR WORLD of tomorrow will bring many changes. But in one vital aspect of American living, your great-grandchildren will continue to enjoy the same dependability and service you know today. *Cast iron pipe laid today will still carry water and gas to their homes.*

Today, over sixty American cities and towns are still served by cast iron water and gas mains laid 100 and more years ago. And modernized cast iron pipe, centrifugally cast, is even stronger, tougher, more durable.

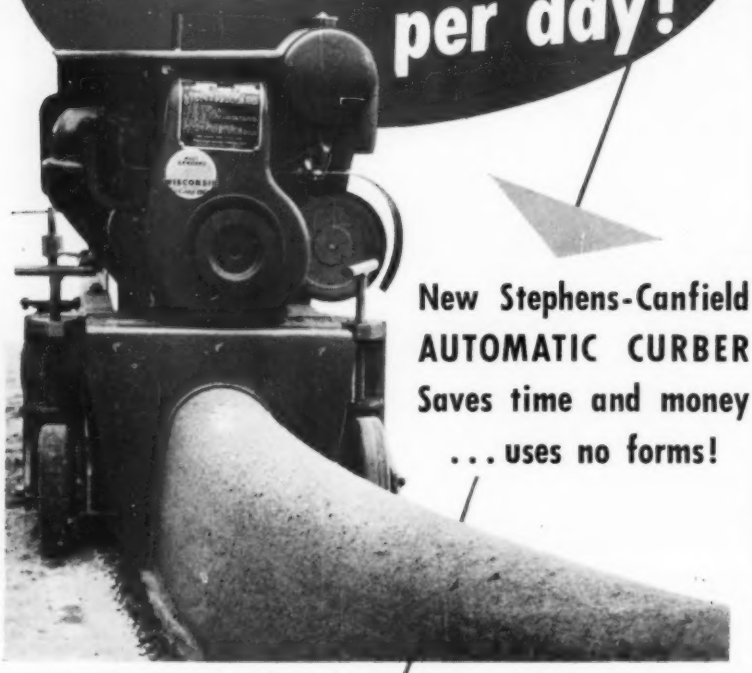
U. S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

U.S. cast iron PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE
CAST IRON

United States Pipe and Foundry Company
General Office: Birmingham 2, Ala.

A wholly integrated producer from mines and blast furnaces to finished pipe.

Lays 1800 feet of FINISHED CURB per day!



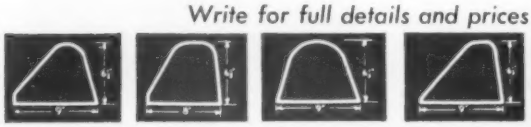
New Stephens-Canfield AUTOMATIC CURBER Saves time and money . . . uses no forms!

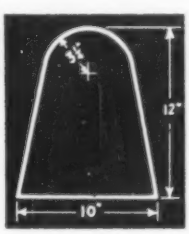
The Stephens-Canfield Automatic Curber is self-propelled and requires only three men to operate.

Simply mark out location, start the motor and fill the hopper with asphaltic or Portland Cement concrete . . . compaction pressure does the rest; the operator merely guides the Curber!

The Stephens-Canfield Automatic Curber lays straight or curved curbs on subgrade, base or finished pavement. Adjustable wheels allow this versatile Curber to be raised or lowered to permit pouring of curbing in various sizes from 6" to 12" high. Interchangeable molds provide a choice of eighteen different shapes from 6" to 12" high and 7" to 10" base width. Lays up to 1800 feet of finished curb per day, without forms! Many state highway departments are today saving time and money with the Stephens-Canfield Automatic Curber!

Write for full details and prices





E. L. HARDIN ASSOCIATES, INC.

Salisbury, North Carolina, U.S.A.

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Tractor Sweepers Get Year-Round Workout

215 In spring, summer and fall use your M-B tractor sweeper to clear streets of leaves and other debris. In winter, put it to work clearing snow. The M-B brushes are constructed of steel or fibre, and are made for Ford, Case, Ferguson, Minneapolis-Moline, International Harvester and John Deere tractors. Pull-type traction and engine-powered sweepers are also available. Write MB CORP., NEW HOLSTEIN, WIS.

Cuts 16-Inch Pipe in Minutes

216 The new Big Guillotine power pipe saw works right on the job cutting cast iron and steel pipe, from 10 to 16 inches in diameter, in a space only 32 inches wide. The 312-pound saw is clamped to the pipe with a double chain pipe vise, and is ready to cut in seconds. A special steel V saddle base assures a square cut at right angle to the pipe. Write THE E. H. WACHS CO., 1525 N. DAYTON ST., CHICAGO 22, ILL.

Traffic, Warning and Street-Name Signs

217 A 40-page manual of hundreds of traffic, warning and street-name signs and specifications may be obtained from LYLE SIGNS, INC., 2723 UNIVERSITY AVE., S.E., MINNEAPOLIS 14, MINN. Conforming to latest U. S. Standards, these signs are deeply embossed on durable stock. They are then finished with baked-on enamel for high visibility. Copies of the new *Sign Manual* will be furnished on request.

New Sewage Pump Is Clog-Proof

218 Working with a fully recessed impeller, the Wemco torque-flow solids pump will pump sewage sludge and raw sewage, too, efficiently, economically and without clogging. The impeller is located outside of the main flow path, assuring the unobstructed flow of solids. The new solids pump is made by WESTERN MACHINERY CO., 760 FOLSOM ST., SAN FRANCISCO 7, CALIF. Write for *Bulletin No. PIO-B6.*

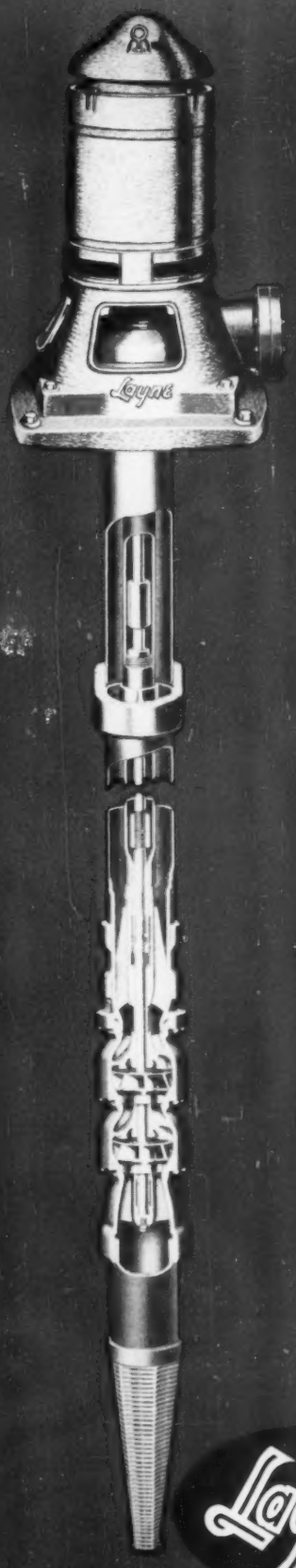
Catch Basin Cleaning Made Fast and Efficient

219 Easily mounted on any short wheel base truck with eight feet in back of the cab, the Netco catch basin cleaner can be operated continuously, averaging from 20 to 30 catch basins a day. The unit operates with either an orange peel or a clamshell bucket. It features a hoisting capacity up to 1,500 pounds. Write NETCO DIV., CLARK-WILCOX CO., 118 WESTERN AVE., BOSTON 34, MASS.

Clears City Streets of Ice and Snow

220 Scattered over ice and snow, these small white pellets generate heat quickly to melt through slippery surfaces. The new compound is known as Ice-Chaser, and is reported to clear icy sidewalks, streets and steps 30 times faster than salt. It leaves no residue, is noncorrosive, and is completely safe for vegetation. Write CONSOLIDATED PAINT & VARNISH CORP., 1831 WILLEY ST., CLEVELAND, OHIO.

(See p. 50 for more Bulletins)



There are Many Reasons for World Leadership of...

Layne

VERTICAL TURBINE PUMPS

Tested and proved in thousands of installations of all types, the world-wide leadership of Layne pumps has led the field for one overall reason—PERFORMANCE . . . under all kinds of operating conditions.

That envied, but never duplicated, performance record has been made for many reasons. These are a few:

1. Complete and undivided manufacturing responsibility: Every part of every Layne pump is manufactured in the Layne factory to Layne high standards.
2. Concentration on one make: A lifetime of experience is behind every Layne pump . . . and that accumulated "know how" is focused on one pump alone.
3. Proven design: The basic design of a Layne pump has been job tested under every conceivable operating condition. And that design is converted into a finished unit through a series of highly specialized and quality-controlled factory operations.

To know all the reasons why Layne pumps are preferred by Industry—Municipalities—and Agriculture, write for bulletin number 100.

LAYNE
& BOWLER, INC.
MEMPHIS
General Offices and Factory

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Layne

Water Wells • Vertical Turbine Pumps • Water Treatment

THE MEMBERSHIP OF A

96% OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.
Based on the findings of a survey conducted by leading water works engineers.

CAST IRON PIPE

DISTINGUISHED CLUB...

The Cast Iron Pipe Century Club is probably the most unusual club in the world. Membership is limited to municipal, or privately-owned, water and gas supply systems having cast iron mains in service for a century or more. Although the Club is formally constituted, there are no dues, no regular meetings, and no obligations other than to inform the Recording Secretary if and when the qualifying water or gas main is taken out of service, or, sold for re-use.

In spite of the unique requirements for membership, the Club roster grows, year by year, from 18 in 1947 to 73 in 1955. Members comprise 38 *water* and 35 *gas* utilities, in cities large and small, from the Pacific to the Atlantic, from Canada to the Gulf.

If your records show a cast iron main in service, laid a century or more ago, the Club invites you to send for a handsome framed Certificate of Honorary Membership. Address Thomas F. Wolfe, Recording Secretary, Cast Iron Pipe Century Club, Peoples Gas Bldg., Chicago 3, Illinois.

C. I. P. CENTURY CLUB NOW HAS 73 MEMBERS!

ALBANY, New York
Department of Water and Water Supply
ALBANY, New York
Niagara Mohawk Power Corp. (Gas)
ALEXANDRIA, Virginia
Alexandria Water Company
*ALLENTOWN, Pennsylvania
Bureau of Water
BALTIMORE, Maryland
Bureau of Water, Dept. of Public Works
BALTIMORE, Maryland
Consolidated Gas Electric Light and Power Co.
BOSTON, Massachusetts
Public Works Dept., Water Division
BOSTON, Massachusetts
Boston Consolidated Gas Co.
BOUND BROOK, New Jersey
Public Service Electric & Gas Co.
BRIDGEPORT, Connecticut
Bridgeport Gas Light Company
BUFFALO, New York
Department of Public Works, Division of Water
CHARLESTON, South Carolina
South Carolina Electric & Gas Co.
CHICAGO, Illinois
Peoples Gas Light & Coke Company
CHICAGO, Illinois
Water Works Department
CINCINNATI, Ohio
Cincinnati Gas & Electric Co.
COLUMBIA, Pennsylvania
Columbia Water Company
DETROIT, Michigan
Board of Water Commissioners
DETROIT, Michigan
Michigan Consolidated Gas Co.
*EVANSVILLE, Indiana
Southern Indiana Gas & Electric Company
FALL RIVER, Massachusetts
Fall River Gas Works Company
FREDERICK, Maryland
City of Frederick Water Dept.
FREDERICK, Maryland
Frederick Gas Company, Inc.
CITY OF FREDERICKSBURG, Virginia
Gas Department
HALIFAX, Nova Scotia
Public Service Commission, Public Water Supply
HARTFORD, Connecticut
The Hartford Gas Company
HARTFORD, Connecticut
Water Bureau of the Metropolitan District
HUNTSVILLE, Alabama
Municipal Water Works
INDIANAPOLIS, Indiana
Citizens Gas & Coke Utility
LANCASTER, Pennsylvania
Bureau of Water
LOUISVILLE, Kentucky
Louisville Gas & Electric Co.
LYNCHBURG, Virginia
City of Lynchburg Water Department
MADISON, Indiana
Natural Gas Service, Inc.
*MINERSVILLE, Pennsylvania
The Municipal Authority of the Borough of Minersville
MOBILE, Alabama
Mobile Gas Service Corp.
MOBILE, Alabama
Mobile Water Works Company
MONTREAL, Quebec
Quebec Hydro-Electric Commission
MONTREAL, Quebec
Public Works Dept., Water-Works & Sewerage Division
*NASHUA, New Hampshire
Pennichuck Water Works
NASHVILLE, Tennessee
Waterworks Department
NEW BRUNSWICK, New Jersey
Public Service Electric & Gas Co.
NEW HAVEN, Connecticut
New Haven Gas Company
NEW ORLEANS, Louisiana
New Orleans Public Service, Inc. (Gas)
NEWARK, New Jersey
Public Service Electric & Gas Company
NEW YORK, New York
Department of Water, Gas & Electricity
NORRISTOWN, Pennsylvania
Philadelphia Electric Co., Gas Dept.
PAINESVILLE, Ohio
City of Painesville, Gas District Department
*PEORIA, Illinois
Central Illinois Light Company
PHILADELPHIA, Pennsylvania
Department of Public Works, Bureau of Water
PHILADELPHIA, Pennsylvania
Philadelphia Gas Works Co.
PITTSBURGH, Pennsylvania
Bureau of Water, Department of Public Works
PLYMOUTH, Massachusetts
Plymouth Gas Light Company
POTTSVILLE, Pennsylvania
Pottsville Water Company
PROVIDENCE, Rhode Island
Providence Gas Company
QUEBEC, Canada
Quebec Power Company, Gas Division
READING, Pennsylvania
Bureau of Water
RICHMOND, Virginia
Department of Public Utilities (Gas)
RICHMOND, Virginia
Department of Public Utilities (Water)
ROCHESTER, New York
Rochester Gas & Electric Corp.
SACRAMENTO, California
Division of Water & Sewers
ST. JOHN, New Brunswick
Water & Sewerage Department
ST. LOUIS, Missouri
Department of Public Utilities, Water Division
SALEM, Massachusetts
North Shore Gas Company
*SPRINGFIELD, Illinois
Central Illinois Light Company
SYRACUSE, New York
Water Division, Department of Engineering
TORONTO, Ontario
The Consumer's Gas Co. of Toronto
TROY, New York
Department of Public Works
UTICA, New York
City of Utica, Board of Water Supply
WHEELING, West Virginia
City of Wheeling Water Department
WILMINGTON, Delaware
Wilmington Water Department
WINCHESTER, Virginia
Water Department
WINSTON-SALEM, North Carolina
Water Department
YORK, Pennsylvania
York Water Company
ZANESVILLE, Ohio
Water Department

*New Members in 1955

SERVES FOR CENTURIES

Catalogs for You

Write directly to the manufacturers or use Post Card at p. 50

Aid in Selecting Mobile Radio Units

221 A folder discussing various factors to be considered in selecting mobile 2-way radio units includes a detailed listing of 10 features which improve performance. Among these are interchangeability in mixed fleets of 6- and 12-volt cars, and ease of maintenance. For your copy of *Bulletin E-131*, write MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., TECHNICAL INFORMATION CENTER, 4501 AUGUSTA BLVD., CHICAGO 51, ILL.

Automatic Pump Operation

222 You don't have to hire an operator to control the operation of single or multiple pump installations in your water supply system. A Bernard Pressure Pilot Control will do the job for you, according to pressure demands, and assuring correct start and stop operation of pump motors without interference of water system surges. Write ERNEST BERNARD ELECTRIC CO., 10335 S. MORGAN ST., CHICAGO 43, ILL.

Elevated Water Tanks

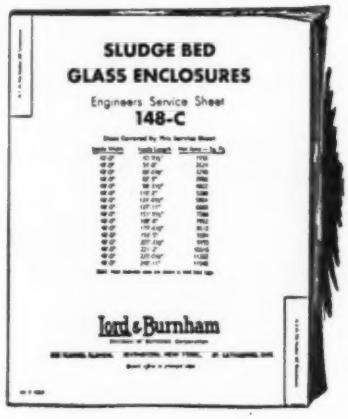
223 Cole elevated tanks have been providing communities with a dependable water supply since 1854. These sturdy structures will hold from 5,000 to 2,000,000 gallons of water. They are described in *Tank Talk*, an informative catalog from R. D. COLE MFG. CO., NEWNAN, GA.

GLASS COVERS for SEWAGE TREATMENT PLANTS

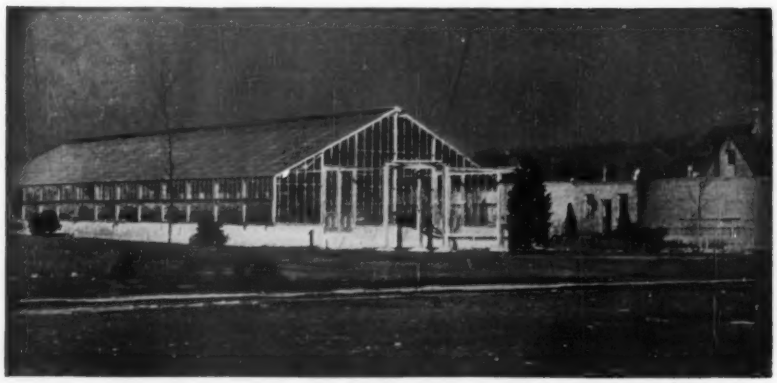
Sludge beds, sprinkling filters, tanks or wherever a glass cover is needed.

Send for These Valuable Engineers Service Sheets

Set of six Engineers Service Sheets furnished on request. Contain details, specifications and recommendations to suit individual job requirements.



Lord & Burnham
DIVISION OF BURNHAM CORPORATION
IRVINGTON, N. Y. DES PLAINES, ILL.



Typical Sludge Bed Glass Cover

Ends Corrosion in Sewage Treatment Plants

224 Sewage disposal equipment including concrete surfaces, trickling filters, settling tanks and steel pipe, is quickly and adequately protected with Pitt Chem coal tar coatings. These coatings are easy to apply by roller, spray or brush. They are fully described in literature from PITTSBURGH COKE & CHEMICAL CO., PROTECTIVE COATINGS DIV., GRANT BLDG., PITTSBURGH 19, PA.

For Overhead Maintenance Jobs

225 Simplify all overhead maintenance jobs in your municipality with Holan's new manually-operated hydraulic ladder, the Series 2500. This efficient unit rotates 360° and elevates to 72°. It is available in 24-, 28- and 32-foot ground-to-platform heights with standard or "Duo-Level" platforms. For additional data, write HOLAN THRIFT LINE CORP., EVEREE INN ROAD, GRIFFIN, GA.

Portable Air Compressor

226 Inexpensive to own and operate, the Lindsay Model 80 air compressor offers an 80 cfm air delivery, sufficient power to run a heavy breaker or drill. This portable, radial-type unit weighs 1,225 pounds. It is described and illustrated in literature from P. K. LINDSAY CO., 97 TILESTON ST., EVERETT, MASS.

Filter Sand and Gravel

227 To make your rapid sand filters dependable, make sure you get sand and gravel that have been properly graded and that feature the chemical and physical qualities needed to assure proper filtering. Some of the finest available filtering sand and gravel may be obtained from the NORTHERN GRAVEL CO., P. O. BOX 307, MUSCATINE, IA. Details on request.

New Tiller-Mower Speeds Park Maintenance

228 In addition to mowing operations with either a 30-inch reel-type or a 26-inch rotary-type mower, the new 3.6 hp Super Rotary Tiller-Mower can be used for weeding, light hauling, weed cutting and litter removal. The unit features a 16-inch tiller attachment designed for garden tilling and cultivating, fluffing, and mulching the seedbed. It is available from THE MIDLAND CO., SOUTH MILWAUKEE, WIS.

Municipal Castings

229 Manhole frames and covers, catch basin inlets, floor and roof drains, and many other items to meet any municipal construction requirement, are described and illustrated in *Catalog R*, second edition. For your copy, write the NEENAH FOUNDRY CO., NEENAH, WIS.

Cleans Sewers Quickly

230 The best way to keep your sewers in 100% working condition is to clean them thoroughly, eliminating such obstructions as roots and caked sediment. You can do this quickly and economically with an Expanding root cutter and sewer cleaner. This efficient machine is described, along with other sewer-cleaning equipment, in *Catalog No. 56*. Write EXPANDING SEWER MACHINE CO., 108 E. WALNUT ST., NAPPANEE, IND.

Meters for Single and 2-Car Parking

231 The Karpark Unimatic for single car parking, and the efficient Twin-O-Matic for timing two cars with one installation, are offered by the KARPARK CORP., CINCINNATI 6, OHIO. Both meters are designed for easy installation, economical collection and minimum maintenance. They assure a high net revenue and maximum parking space turnover.

What's Your Problem?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 177, as circled below:

768	774	780	786	792	798	804
769	775	781	787	793	799	805
770	776	782	788	794	800	806
771	777	783	789	795	801	807
772	778	784	790	796	802	808
773	779	785	791	797	803	809

I would also like to receive manufacturers' booklets on .....

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Name:(Please Print) .....

Title: .....

Address: .....

..... 1-56

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

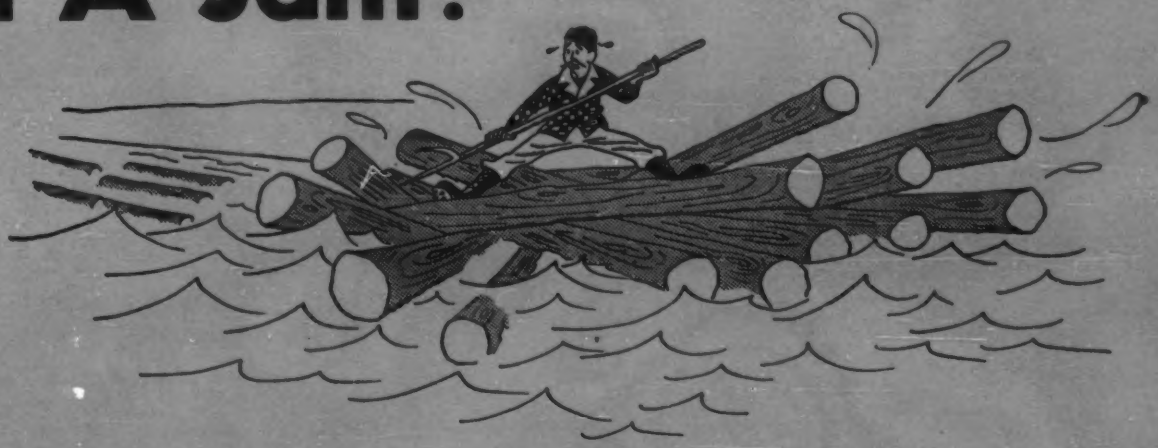
THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

In A Jam?

You can obtain manufacturers' literature by making use of these convenient Business Reply Cards! A quick easy way to get full details on products and services mentioned or advertised in this issue.



To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on Page 26:

154	160	166	172	178	184	190	196	202	208	214	220	226
155	161	167	173	179	185	191	197	203	209	215	221	227
156	162	168	174	180	186	192	198	204	210	216	222	228
157	163	169	175	181	187	193	199	205	211	217	223	229
158	164	170	176	182	188	194	200	206	212	218	224	230
159	165	171	177	183	189	195	201	207	213	219	225	231

I would also like to receive manufacturers' booklets on .....

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Name: (Please Print) .....

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Address: .....

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BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

For Trouble-Free Service, Infiltration-Proof Joints

COLUMBIA, MO.

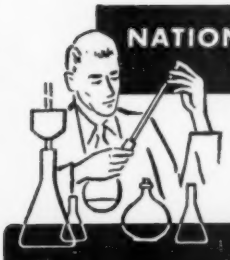
Specifies

CLAY PIPE

COLUMBIA, MISSOURI'S latest municipal sewerage improvement project called for more than 42,000 feet of 24 inch to 36-inch Vitrified Clay Pipe. A large section of the project is located in the city's attractive university district, where officials are especially interested in avoiding unsightly repair jobs in the years ahead. Other parts of the line were laid adjacent to a creek, making leak-proof, infiltration-proof joints a "must." With these requirements in mind, officials in charge of the project specified Vitrified Clay Pipe . . . the *only* pipe that never wears out. A wide variety of new jointing methods, developed through industry-wide research, insure *absolutely tight* lines—even in high-water-table areas. For *permanent* service, always specify and install Clay Pipe. *It's guaranteed for half a century.*

FOR COLUMBIA, MO.—S. E. Grundler, City Engineer
CONSULTING ENGINEERS—Black and Veatch, Kansas City, Mo.
CONTRACTORS: B & G Construction Company, Carthage, Mo., Supt. Roy E. Fuller, and Foreman Lewis Dye.

Vitrified CLAY PIPE
CLAY PIPE NEVER WEARS OUT!



NATIONAL CLAY PIPE MANUFACTURERS, INC.
1820 N. Street, N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

C-156-1

Progress in Public Health - Through Clay Pipe Research

QUICK, LOW-COST ANSWER TO 4 PROBLEMS...

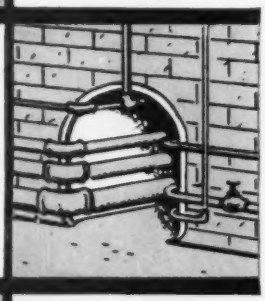
Flat-Base Pipe

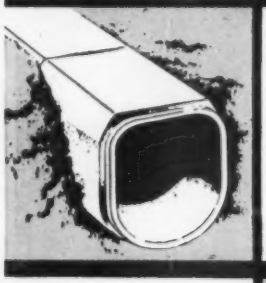
PEDESTRIAN UNDERPASS

The practical way to safeguard the lives of adults and children. Especially valuable near schools and playgrounds. Also helps to maintain an even flow of street-level traffic.

UTILITY GALLERY

Carries steam pipes, gas mains, electrical cables and telephone lines with ample room for workmen to make repairs. Flat-Base Pipe is also used for culverts and cattle passes.



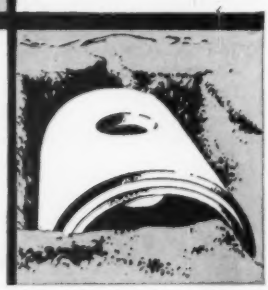


HEATED SIDEWALK

When installed inverted, the flat-base part of the pipe becomes a sidewalk. Steam or hot water pipes running through the Flat-Base melt snow on the walk and provide better, safer footing.

UTILITY MANHOLE

Manholes for utility companies have often been built with Flat-Base Pipe in less than four hours. This eliminates needless traffic delay and reduces labor costs to a minimum.



Save as much as *30%* in the construction of pedestrian underpasses, culverts, utility galleries and manholes—with pre-cast Flat-Base Pipe. You can place and cover from 52 to 100 feet of Flat-Base Pipe in a single day. No forms to construct . . . no steel reinforcing to position . . . no concrete pouring. Can be jacked through old construction or laid in new fills. Joints are tongue and grooved and can be made watertight with rubber gaskets. Available now, in a wide variety of standard sizes.

Our technical staff will be pleased to assist you with your pipe problems.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION

GENERAL OFFICES: AMERICAN-MARIETTA BUILDING, 101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS • PHONE WHITEHALL 4-5600

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B. C. Concrete Company, Ltd. — Concrete Products Co. of America — Lewistown Pipe Company
Concrete Conduit Company — Lamar Pipe and Tile Company — Universal Concrete Pipe Co.
American-Marietta Company of Pennsylvania

The best

water meter

you can buy is

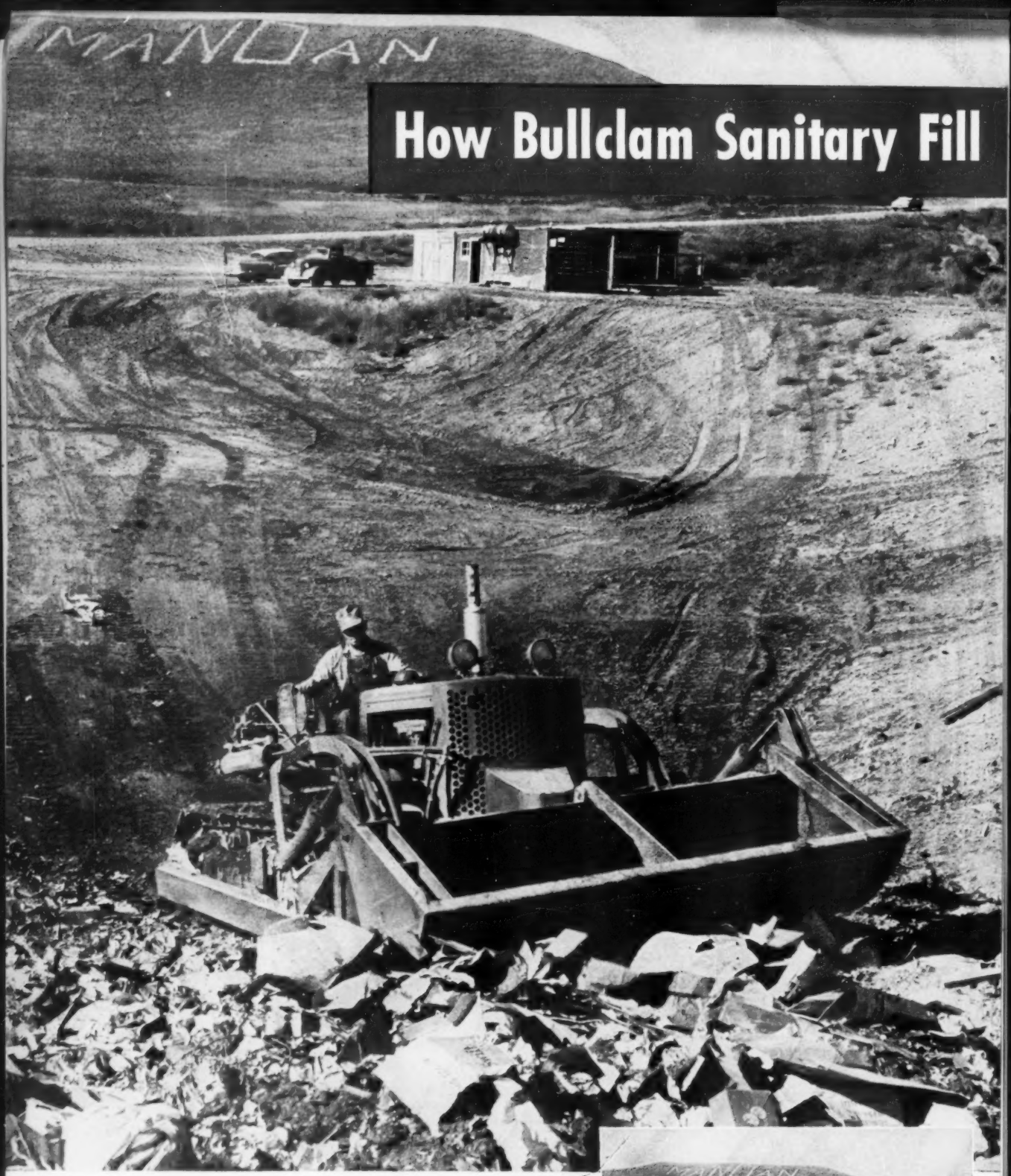
HERSEY

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

How Bullclam Sanitary Fill



In any weather, Mandan's International Drott TD-14A Bullclam crushes and compacts the daily refuse accumulation.

...then covers it—either from dirt freshly dug, or from one of the stockpiles the outfit is shown making!

Succeeds for Mandan (No. Dak.)...

Like many another progressive city in the "Hard-Freeze Belt," Mandan, North Dakota, assures year-'round refuse disposal with the modern International Drott Bullclam Sanitary Landfill method.

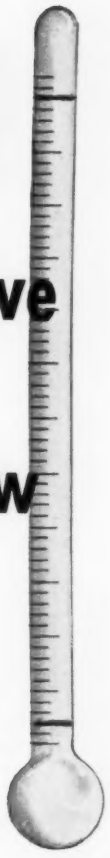
Even in 34° below zero cold, not unusual for Mandan, the Bullclam's compactor-plate and clam curvature design give the daily refuse accumulation its ironing down—the same as in 100° summer heat. This crushes and compresses the material into the least possible volume.

Even in 34° below zero cold, the Bullclam easily obtains cover dirt from a windrow stockpile, made before freeze-up. Even on coldest days, it breaks the surface frost, gets full buckets of loose dirt, and spreads it uniformly over the compacted refuse under clam control.

Even in 34° below zero cold, the dirt-loaded Bullclam irons-down the cover to make an air-tight seal, eliminate pest-pockets, prevent odor, protect community health.

In any weather, hot or cold, the proper-sized International Drott unit provides the lowest refuse-disposal costs available! Another big reason for year-'round success with this equipment is positive all-weather International diesel starting. You start on gasoline, hot or cold, so direct combustion heat conditions this engine, *seconds-fast,* to operate as a full-diesel *—without fooling or fouling!*

100° Above
TO
34° Below



International DROTT Four-In-One

cuts old-method disposal time in half—for hustling

"Our Four-In-One speeds the job, gives uniform spreading and crushing, plus 4-machine usefulness," reports George E. Davis, Rockwood's Supt. of Sanitation and Health.

Rockwood, Tenn.
(population 5000)

With this International Drott TD-6 Four-In-One as "disposer," live-wire Rockwood, Tennessee, cut its old-method disposal time in half! Besides giving Rockwood new efficiency in spreading, crushing, and sealing refuse, the *patented* and *exclusive* Four-In-One also gives four-machine utility for dozens of other jobs—bulldozing, clamshell loading, Bullclam grading, Skid-Shovel excavating, for instance. You obtain the Four-In-One machine action wanted simply by moving the convenient selector lever!

Measure the savings, compare the all-weather efficiency of International Drott refuse-disposal equipment *with any other make or method!* See why more cities use International Drott outfits than any other Sanitary Landfill equipment. Your International Drott distributor is at your service for a Bullclam or Four-In-One demonstration.

INTERNATIONAL HARVESTER

INTERNATIONAL®
DROTT

NOW... Cashiering and Bookkeeping in *one unit*... a great space-saving, public relations tool!

This Customer Service Counter is a complete working station for all cashiering and bookkeeping operations. It provides the highest degree of efficiency, in the smallest amount of space.

The customer has ideal counter height for making out checks and applications. There's even a continuous parcel shelf, encouraging customers to step aside so that the next in line may be served.

The clerk *always* faces the customer...wastes no time walking from bookkeeping desk to counter and back. Customers are served more promptly, efficiently and courteously. The "extra" desk is eliminated.

With complete facilities within arm's reach, the clerk works seated comfortably at her desk, ending the usual "standing" counter cashiering, with the fatigue and errors which are bound to result.

In larger offices, two or more units may be joined, providing any desired number of work stations. Singly, or in combination, these sections have the rich appearance of custom-made counters, but provide the adaptability that custom-made counters cannot hope to match. Each unit can house record forms of any size. Most important, desk-height, *certified* fire-insulated units are available to protect counter-stored vital records, 24 hours a day, at their point-of-use.

See for yourself the many advantages of the Sectional Customer Service Counter. Send for our free booklet on the subject, SC764. You'll find it interesting and informative. Just write to Remington Rand, Room 1164, 315 Fourth Avenue, New York 10, N. Y., and ask for SC764.

Remington Rand
DIVISION OF SPERRY RAND CORPORATION

PROFIT-BUILDING ***IDEAS*** FOR BUSINESS
ROOM 1164, 315 FOURTH AVENUE, NEW YORK 10, N. Y.

When the chips are down—

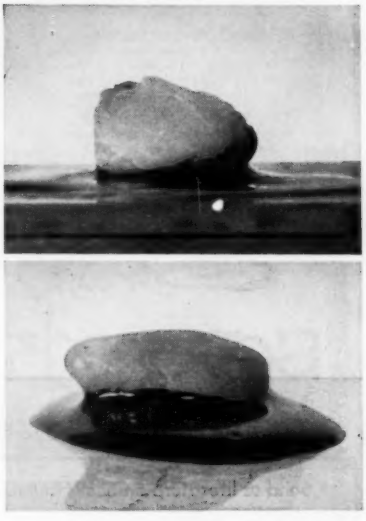
your best bet is BITUMULS®

ON SURFACE TREATMENT and light Armorcoat construction, you can be sure that cover chips are *down to stay* when they go down in Bitumuls. Bitumuls emulsified asphalt literally "climbs" high up on the individual chips, coating them with thin, strong films of pure asphalt. This means maximum cover retention.

In addition, Bitumuls provides an effective seal for the pavement, whether old or new, and assures a safe, non-skid wearing surface.

This superior performance plus the speed, ease and economy of using asphalt in emulsified form, makes Bitumuls the first choice of road-builders everywhere for surface treatment work.

Complete data and specifications on Bitumuls Surface Treatments and Armorcoats are available from our nearest office.



These laboratory photographs show the superior ability of Bitumuls to "wick-up" on the sides of cover chips. Top is a stone put down in an asphalt cut-back; lower, stone put down in Bitumuls.

AMERICAN Bitumuls & Asphalt COMPANY

200 BUSH STREET • SAN FRANCISCO 20, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala. Cincinnati 38, Ohio Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.

CLEAN SEWERS THE NEW WAY

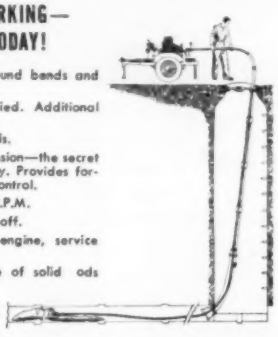
WITH O'Brien sewerking®

POWER CABLE-RODDER

By using flexible *steel cable*, the O'BRIEN SEWERKING cleans sewers entirely by power. With the correct cutting tool attached, the 1" cable is power propelled into the sewer, cuts through accumulated waste, silt, roots or foreign objects. The cable is retrieved by power and coiled on the storage drum. Using *continuous* cable saves time compared with joining and disconnecting solid rods; there's less breakage and it's *safer* for the operator.

INVESTIGATE SEWERKING— MAIL COUPON TODAY!

- Flexible cable reaches around bends and traps.
- 250 feet of cable supplied. Additional amounts easily connected.
- Complete line of cutting tools.
- Exclusive OB power transmission—the secret of handling cable efficiently. Provides forward, reverse and neutral control.
- Rotating speeds—75-175 R.P.M.
- Throw-out clutch—for on or off.
- Super powered gasoline engine, service guaranteed.
- Adapter available for use of solid ods when desired.



O'Brien sewerking®

FREE CATALOG! Mail coupon today for literature, prices and list of cities using the SEWERKING.

O'BRIEN MANUFACTURING CO. • CHICAGO 30, ILLINOIS

• Send us literature on SEWERKING, without obligation.

NAME OF CITY _____ STATE _____

STREET ADDRESS _____

SIGNED BY _____

TITLE _____ DATE _____

AC-156

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[illegible] Northwest Highway • Chicago 30, Illinois

attention civil defense chiefs!

MODERNIZE YOUR

WARNING SIGNAL SYSTEM

with this NEW extra-compact powerful

BENJAMIN SIREN!

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

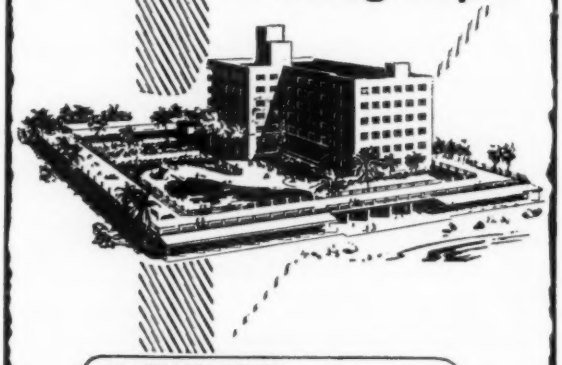
for plant protection

It's the 20th Century Pony Express!

FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co. Dept. AC, Des Plaines, Ill.

609 CD

the Right Spot



At MIAMI BEACH... The Coronado presents a new, beautiful and unusually spacious cabana colony and pool arranged to provide utmost privacy for our guests... complemented by our broad, unobstructed beach, superior cuisine and appointments for finest resort hotel living by the sea.

Write today for our brochures.

SELECT CLIENTELE

Open Year 'Round

THE Coronado

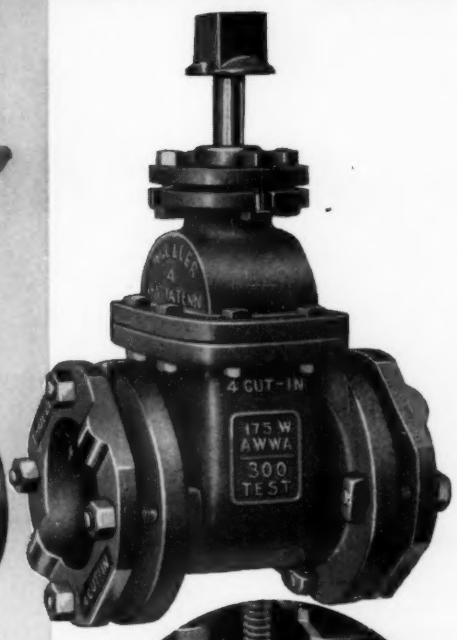
8751 COLLINS AVE., MIAMI BEACH, FLA.

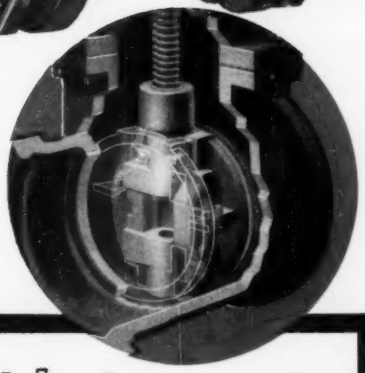
Open Year 'Round

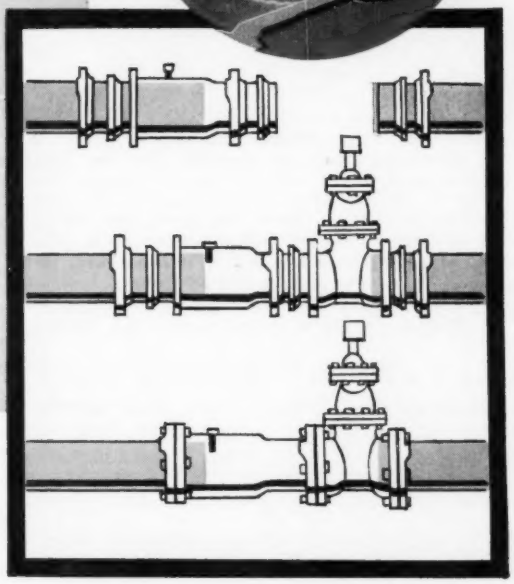
MUELLER®

CUT-IN SLEEVE AND VALVE GIVES ADDED CONTROL—

at low cost!







You can add needed control valves on 4", 6", 8", 10" and 12" cast iron mains quickly, easily and at low cost with the Mueller Cut-In Sleeve and Valve.

Both the sleeve and valve are equipped with mechanical joint to give permanent connections in a minimum of time. A Cut-In Sleeve and Valve of a nominal size will fit all classes of pipe in that size range, by using a specific type of end gasket. A variety of types of end gaskets are available for all classes of pipe.

The Mueller Cut-In Valve is available with conventional packing or "O" ring stem seals. The exclusive Mueller four-point disc wedging mechanism exerts seating pressure near the perimeter of the discs – prevents disc deflection and assures positive shut-offs. Consult your Mueller W-96 Catalog, your Mueller Representative, or write direct for complete information.

MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

MOBILE TRENCHER — Mobility on rubber is the answer to widely-scattered, small-yardage trenching jobs around town, and in outlying suburbs. Parsons rubber-tired Trenchmobile® drives cross-town, through traffic at 12.6 m.p.h. There's no waiting for trailer, no loading or unloading delays. It digs up to 14½ feet of trench per minute — 8 to 16 inches wide, at depths to 5 feet. (Bigger sizes of Parsons Trenchliners, on crawlers, offer widths up to 6 feet, depths to 17 feet, for storm sewers, water, gas mains.)

Digs up to 25 feet per minute

For fast, low cost installation of city pipelines, and on extension of service lines into newly annexed areas, look into the big work capacity of this Parsons 150 wheel-type Trenchliner. It digs from 12 inches to 25 lineal feet of trench per minute — 16 to 26 inches wide, at depths to 5¾ feet. Hinged crumber sweeps trench bottom clean, ready to receive pipe. On airport and highway drainage, tile-laying attachment (optional) lets you install tile while the Parsons 150 digs the trench.

Specified grades are easy to maintain, because hydraulic ram raises and lowers the digging wheel — gives accurate control of trench depth. A separate ram tilts the vertical mast — carries wheel forward on the machine when traveling or trailer-loading.

Also check its quick-change buckets with gumbo lips or "Tap-In" teeth; controlled-discharge spoil conveyor; 16-inch grouser-type crawlers, or 12-inch crawlers with flat shoes; 60 h.p. gas or diesel engine. See Parsons distributor, or write for 150 Trenchliner® bulletin.

• • • • • **PARSONS CO., Newton, Iowa** • • • • •

Send us bulletins on ☐ 88 Trenchmobile ☐ 150 Trenchliner

NAME_____

TITLE_____

DEPARTMENT_____

STREET_____

CITY, STATE_____ CPS49 AC

PARSONS COMPANY • NEWTON, IOWA
(Koehring Subsidiary)

Long, deep reach — high dump with heavy-duty 1/2 yard hoe

Excavating basements, footings, storm sewers, water and gas mains, Koehring ½-yard hoe digs 17¾ feet below grade. Long reach lets it cast excavated material well back from edge of cut, or gives ample clearance to load into trucks. Clearance height at beginning of dump is 8¾ feet.

Maximum cutting width, with side-cutters, is 31 inches. During the hoist-and-swing cycle, close-coupled dipper pulls up tight to the goose-neck boom — avoids spillage. Heavy-duty boom and dipper arm resist side-sway in toughest digging. Powerful cable crowd, fast line speeds, and smooth swing, maintain big-yardage output. Automatic traction-brakes lock and hold the 205 when working or parked.

Operators like the Koehring 205's ease of operation — you'll like the extra *work capacity* you get with every attachment. For example — it readily converts from hoe to ½-yard shovel, handles ½ to ¾-yard clamshell or dragline bucket on a wide work radius, has 10-ton lift capacity as a crawler-mounted crane. It's also available with all standard attachments on 32½ m.p.h. truck mounting for mobile city service. As a truck crane, the Koehring 205 lifts up to 15 tons.

See Koehring distributor, or write for more details. Four larger sizes also available in the Koehring line.

KOEHRING COMPANY • MILWAUKEE 16, WIS.

Bituminous mixer loads into trucks — does stockpiling

Here's the handiest bituminous mixer you've ever seen for city work. It dumps batch directly into trucks from ground level or builds stock-piles. Tower loader attachment gives 7¾ foot discharge height with Kwik-Mix 10 cu. ft. bituminous mixer — and 8¾ foot discharge height with 14 cu. ft. mixer. Big-capacity bucket takes full mixer batch. It is powered by the mixer engine, dumps automatically at top of tower.

There's no delay to mixer production. Bucket travel and discharge are completed while the next batch is being mixed. Tower is easily attached. Top section is hinged, folds back — legs telescope for ample travel clearance.

This versatile Kwik-Mix bituminous mixer fits any production problem. It's easily towed job-to-job — does on-the-spot mixing anywhere around town. Take off the tower, and it does direct pouring on street patchwork or loads into wheelbarrows. Or, remove the wheels, mount the mixer on skids on elevated platform, and you have a big-production; stationary mix plant.

Consistent-texture mix is assured by pug-mill mixing action, and uniform bitumen distribution. For complete mechanical details and more time-saving ideas, see your Kwik-Mix distributor, or write for mixer catalog.

KWIK-MIX COMPANY • PORT WASHINGTON, WIS.
(Koehring Subsidiary)

HERE TODAY *and still here tomorrow*

that's the story of Iowa's Concrete Streets

Sioux City
13th Street, built in 1913. Photos taken 1927 and 1953

Le Mars
Seventh Street, S.E., built in 1923. Photos taken 1924 and 1953

Missouri Valley
Superior Street, built in 1922. Photos taken 1922 and 1953

Council Bluffs
McGee Street, built in 1924. Photos taken 1927 and 1953

MANY Iowa motorists and taxpayers have vivid memories of the "Let's Get Iowa out of the Mud" programs of 35 or 40 years ago. Today these same motorists and taxpayers can be proud of the concrete pavements built a generation ago. Many of these fine old pavements have given continuous ***low-annual-cost*** service under weights and volumes of traffic far beyond what they were designed to carry.

The photos at left show a few of the time-proven concrete streets in Iowa. These streets are still good for many more years of service.

The outstanding durability of Iowa's concrete streets is typical of concrete pavements all over America. With concrete it's truly a case of "here today—*and still here tomorrow.*"

Long service is but one of concrete's many advantages. It also:

1. Is safer. Concrete reflects the most light, thus providing maximum visibility at night. Night or day, wet or dry, concrete's gritty texture affords high skid resistance.
2. Reduces street lighting costs because of its high light reflectance.
3. Requires far less maintenance.
4. Has moderate first cost. For all but lighter traffic, concrete usually costs less to build than other pavements designed for the same traffic. Moderate first cost + low upkeep ÷ long years of service = ***low annual cost.***

Write today for your informative, free copy of "*Concrete Pavement Design,*" distributed only in the U. S. and Canada.

PORTLAND CEMENT ASSOCIATION
DEPT: I-4, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

ONLY $225.00* PER MONTH LEASES THIS FWD PUMPER

Now you can have this bigger, safer FWD pumper right away! No need to go through the lengthy process of increasing legal debt limits . . . holding a bond referendum vote . . . or waiting for budget appropriations. Under FWD's exclusive leasing arrangement, your community can enjoy the protection it needs, quickly, for only $225* per month. (Shorter lease terms can be arranged for communities where regulations require it.) This FWD unit is equipped to meet Standard Fire Underwriter's Specifications. Any optional equipment you want can be included in the lease price. Contact FWD today!

*Varies depending on size of pumper, optional equipment and freight.

Here's your chance to give your community America's finest and safest fire fighting equipment, right away, for only a modest amount each month.

For a complete description of FWD's exclusive lease plan . . . Send coupon to—

THE FOUR WHEEL DRIVE AUTO COMPANY
Clintonville, Wisconsin

Please send copy of your fire engine lease plan

NAME _____

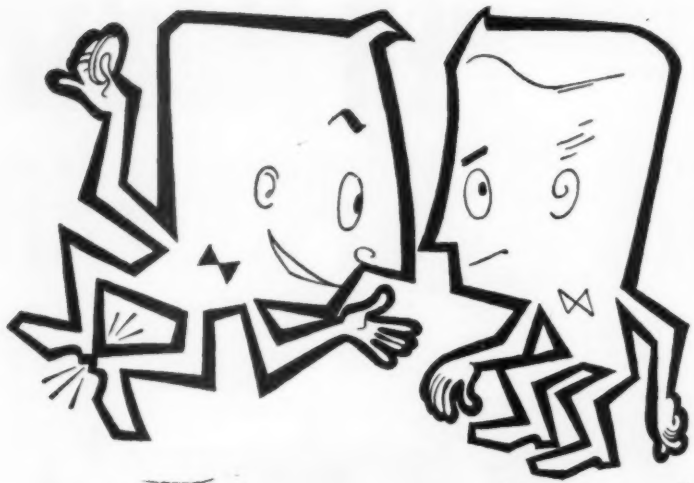
TITLE _____

COMMUNITY _____

COUNTY _____ STATE _____

America's Safest Fire-Fighting Apparatus

THE FOUR WHEEL DRIVE AUTO COMPANY • **Clintonville, Wisconsin** • *Canadian Factory* • KITCHENER, ONTARIO

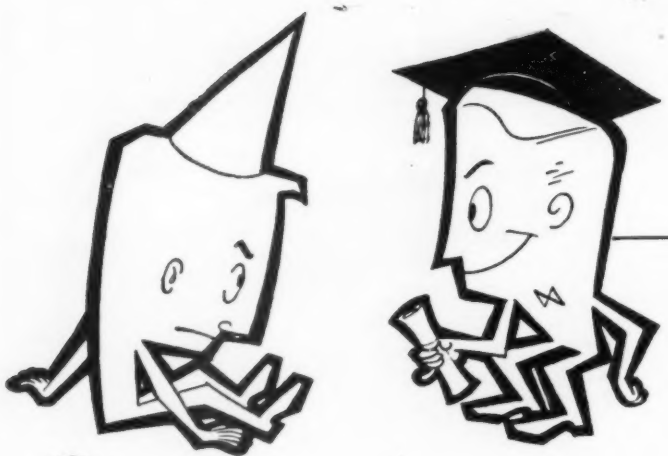


Look! I can buy coal for much less a ton than you're paying.

I used to buy that coal too, but it costs more per million BTU's with a whole lot more in hidden costs.

What do you mean by "hidden costs"?

That coal you're talking about is high in ash. So we were buying ashes at the coal price, paying freight on them from the mine, then paying to have them hauled away. Your "cheaper" coal clinkers; it smokes; it fouls the tubes. That means higher labor costs and higher maintenance. Now I pay more per ton and save thousands of dollars a year.



Coals produced on the C&O are tops in quality.

A C&O combustion engineer showed me why this grade of coal would work best in our type of installation and our experience has shown he was right. You'd better get some expert advice. It can save you money, too.

P.S.

There's a lot more to buying coal than the cost per ton. Why not contact coal producers on the C&O to solve your particular fuel requirements, or write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake and Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER OF BITUMINOUS COAL

HERE'S REAL *Versatility* IN OUTDOOR LIGHTING CONTROL

THE FISHER-PIERCE
SERIES 64400 PHOTOELECTRIC CONTROL

This control embodies the proven, dependable F-P basic circuit, in a simple, compact form. Mounting versatility of this unitized control is represented in the adaptions to various manufacturers' luminaires illustrated here, as well as ballast, pole top, cross arm, standard and other mountings.

Versatility of the Series 64400 Control is equalled by its economy. Low initial cost, savings in wiring, labor and materials, as well as low maintenance cost, make it economically practical to use one F-P 64400 Control per lamp.

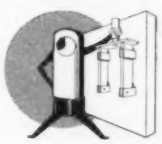
Complete Descriptive Data on Request

FP

THE FISHER-PIERCE CO.
94 Pearl Street, So. Braintree, Boston 85, Mass.

EXPORT: PHILIPS EXPORT CORP.
DIVISION OF NORTH AMERICAN PHILIPS
100 E. 42nd STREET
NEW YORK 17, N. Y.

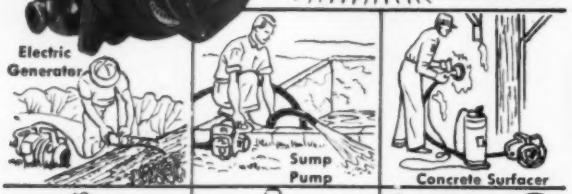
IN CANADA:
NORTHERN ELECTRIC
CO., Ltd.



Made to Order for MUNICIPAL USE

Mall

2MG ENGINE POWERS ALL THESE ATTACHMENTS



A Complete Line of Gasoline Engine Portable Power Tools to speed your work...to cut your costs.

Here's a power packed MALL 2-cycle gasoline engine designed to do many municipal jobs. This lightweight, compact and highly maneuverable engine can power a dozen attachments. These attachments save time and money for your community and can be purchased as the need for each arises.

This engine, coupled with attachments, gives you two or more power tools for the price of one. And, you can depend on MALL for the highest quality, top performing power tools available at the lowest price.

MALL TOOL COMPANY PORTABLE POWER TOOLS GASOLINE • ELECTRIC • AIR

7735 South Chicago Ave., Chicago 19, Ill.

Send me the Free Gas Engine Tool Catalog—tell me more about MALL TOOLS for municipalities.

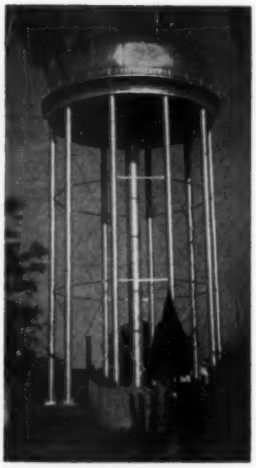
*Name*_____

*Title*_____

*Address*_____

*City*_____ *State*_____ MU-U204

A CENTURY OF EXPERIENCE IN TANK DESIGN



● Established in 1854, COLE elevated tanks have provided a dependable water supply for mills and communities.

COLE quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location.

● Write for latest Cole catalog—*Tank Talk.* ●

R. D. COLE Manufacturing Co., Newnan, Ga.

- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

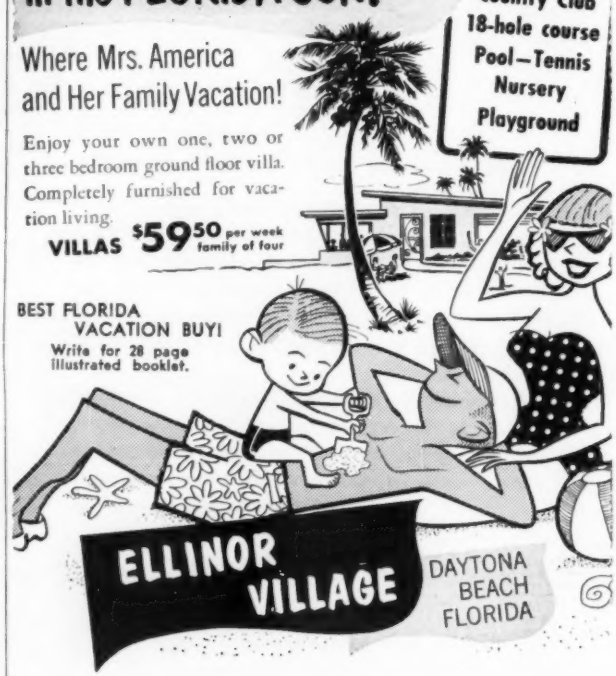
Have a Bushel of Fun... in the FLORIDA SUN!

Where Mrs. America and Her Family Vacation!

Enjoy your own one, two or three bedroom ground floor villa. Completely furnished for vacation living.

VILLAS $59.50 per week family of four

650 VILLAS BY-THE-SEA
Country Club
18-hole course
Pool—Tennis
Nursery
Playground



BEST FLORIDA VACATION BUY!
Write for 28 page illustrated booklet.

ELLINOR VILLAGE DAYTONA BEACH FLORIDA

This timer unit assures performance, accuracy, dependability and rugged durability in these two famous products

This aircraft Flight Recorder, manufactured by the Mechanical Division of General Mills, etches a continuous 300-hour record of heading, air speed, vertical acceleration and altitude on aluminum foil. The recording device, enclosed in a specially fabricated sphere, is designed to withstand shocks up to 100 G's and to resist temperatures of 2000 degrees F, up to 30 minutes in duration.

The sturdy Park-O-Meter, produced by the originators of metered parking, uses this same dependable timer unit in construction of the leading meter for on- and off-street parking control. This snap-on unit, in its dust and moisture tight case, keeps your meters working full time and reduces maintenance service to an unbelievably low minimum. Park-O-Meter costs more to build but saves your city money.

SEE PARK-O-METER BEFORE YOU BUY ANY METER

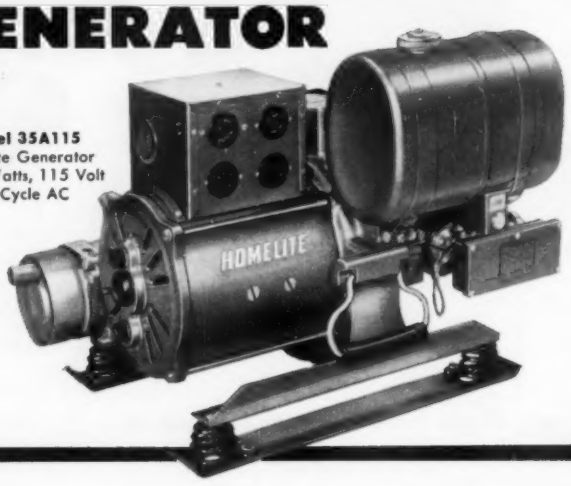
MAGEE-HALE PARK-O-METER COMPANY

COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

ALL NEW DESIGN!

Simple...Foolproof...Low Cost

1500 WATT HOMELITE GENERATOR



Model 35A115
Homelite Generator
1500 Watts, 115 Volt
60 Cycle AC

As easy to move as an electric hand saw!

1. New Money-Saving features . . . No DC brushes; just two easy-to-get-at collector ring brushes . . . No commutator or DC windings . . . No intermediate couplings; armature keys directly to shaft. Fewer parts to wear out — longer trouble-free generator service.

2. Constant Voltage . . . less than 4% change from no load to full 1500 watt capacity . . . assures long service life for your electric tools . . . guarantees top performance at all times.

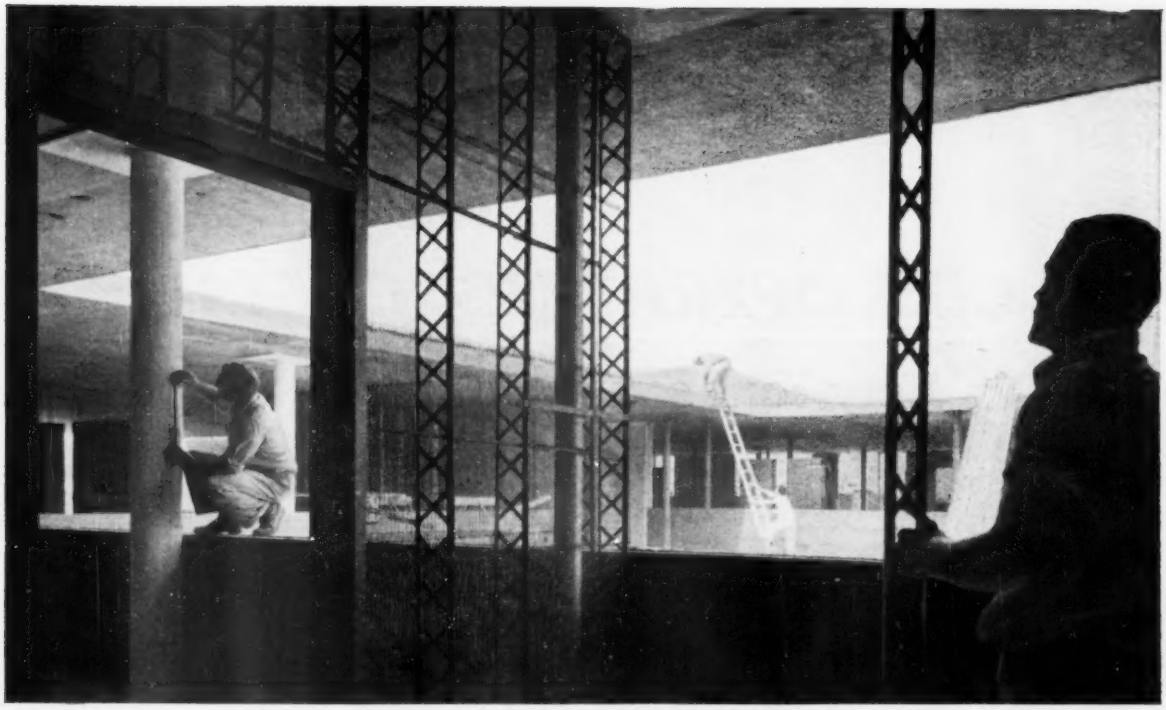
3. Overload Capacity . . . 1500 watt continuous duty with generous overload capacity prevents tool stalling under heavy loads . . . insures uninterrupted service even when starting loads exceed operating loads.

4. Compact and Lightweight . . . one man can easily carry this generator wherever you need electricity to power time-saving electric tools. No need for long, hazardous power-consuming cables.

Whatever tools you want to operate — electric saws, drills, floodlights, grinders, belt sanders, hammers, — the new Homelite 35A115 generator can save you money. For a free demonstration or additional information, call your nearest Homelite representative, or write:

SAVE EVEN MORE! New Homelite electronic idle control unit, available as optional accessory, runs engine at idle speed when no current is drawn . . . automatically brings engine to full speed when load is applied.
Ask your Homelite representative to show you how this easily-installed accessory reduces engine wear . . . increases service life . . . cuts fuel consumption.

HOMELITE *A DIVISION OF TEXTRON AMERICAN, INC.*
101 RIVERDALE AVE., PORT CHESTER, N. Y.
Manufacturers of Carryable PUMPS • GENERATORS • BLOWERS • CHAIN SAWS



New $550,000 Municipal Building, El Monte, Calif., will soon be ready for occupancy

Building cost cut $42,380 by Recordak Microfilming

More than 6,500 sq. ft. of additional floor space would have been required in El Monte's new Municipal Building if all records were kept in original paper form.

But the taxpayers were spared this expense by microfilming tons of deeds, court minutes, ordinances, etc. Now, these can be filed at the finger tips—any item found in a minute or two, and viewed in a Recordak Film Reader.

Furthermore, *protection has been greatly increased.* Recordak Microfilms can't be altered without detection; and duplicate films are stored in a remote bombproof vault.

All in all, something to remember if you're planning to build or rent. Or if you'd like to convert up to 99% of your present filing space into working space.

FREE . . . Valuable New Booklet

"Short Cuts That Save Millions" shows typical examples of how *over 100 different types of business . . . thousands of concerns* . . . cut record-keeping costs with Recordak Microfilming.

Every executive . . . every systems man will find this profitable reading; will see how many of the short cuts will pay off handsomely in his own business. *Mail coupon for your free copy today.* Recordak Corporation (Subsidiary of Eastman Kodak Company), 444 Madison Ave., New York 22, N.Y.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming
—and its application to government routines

New Recordak Reliant does the job of 3 microfilmers. Saves film . . . is easier to operate

"Recordak" is a trade-mark

JUST MAIL COUPON

RECORDAK CORPORATION (*Subsidiary of Eastman Kodak Company*)
444 Madison Avenue, New York 22, N.Y.
Gentlemen: Please send free copy of "Short Cuts That Save Millions."
BB-1

Name_____ Position_____

Company_____

Street_____ City_____ State_____

Superior DUAL-FUEL ENGINES CUT OPERATING COSTS in New York sewage treatment plant

Six Model 80 Superior Dual-Fuel Engines, operating 92% of the time on sewage gas, run six 1125 KVA generators to provide the sole power source for all plant equipment at The Department of Public Works, Owl's Head Sewage Treatment Plant, New York City, having a capacity of 160 million gallons per day.

After a total of 78,000 hours running time, the New York maintenance crew completed the first overhaul of the six Superior engines. Practically no major part replacements were necessary! There was no noticeable wear on the cylinder liners, bearings or other vital parts! Since the engines were torn down, piston rings were replaced; but the old rings were still good enough to save for spares! Records show very low lube oil consumption and pilot fuel costs figure out to only 9 tenths of a mill per KWH. This Superior performance is cutting operating costs to a bare minimum at New York's Owl's Head Plant!

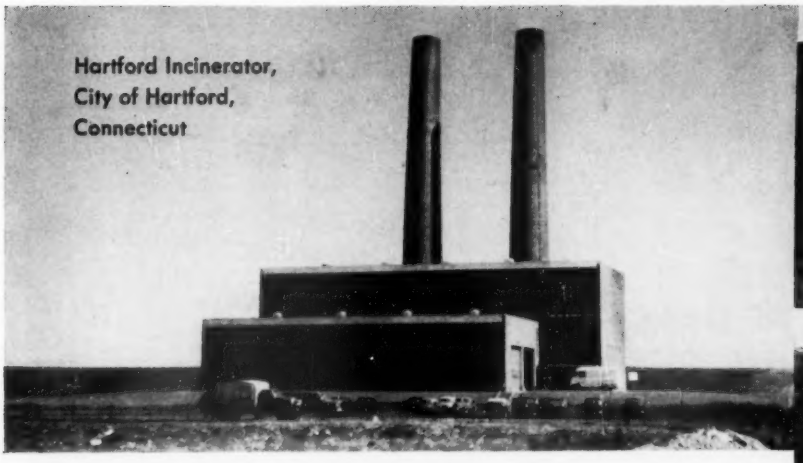
Similarly outstanding performance records are being established throughout the U.S.A., and most other parts of the world where Superior and Atlas Diesels are used for all kinds of power needs. For complete details on how Superior and Atlas power can cut operating costs for you, contact the nearest sales and service office listed below.

Superior ENGINES · ATLAS Imperial DIESEL ENGINES · White DIESEL

WHITE DIESEL ENGINE DIVISION

THE WHITE MOTOR COMPANY • *Plant and General Offices: Springfield, Ohio*

SALES AND SERVICE POINTS: Gloucester, Mass. • Houston, Ft. Worth, Texas • San Diego, Oakland, Terminal Island, California • Ketchikan, Alaska • Washington, D.C. • Portland, Astoria, Oregon • Casper, Wyoming • Halifax, Nova Scotia • Vancouver, B.C. • Park Rapids, Minnesota • New York • Chicago • Seattle • New Orleans • St. Louis • Wichita, Kansas



Hartford Incinerator,
City of Hartford,
Connecticut

(1) Hartford's Fitchburg Chipper

(2) Fitchburg Chipper in action

Modern Hartford disposal plant uses FITCHBURG CHIPPER

Hartford's new municipal incinerator is used to dispose of more than 400,000 pounds of waste every day. The large picture above shows this efficient, attractive plant—one of the most modern in the nation.

An important part of Hartford's up-to-date disposal program is their portable Fitchburg Chipper, which cleans up disposal jobs the incinerator cannot handle, and goes out on location for road use.

Hartford had these problems:

- *Banana Stalk Disposal*
- *Brush Disposal on New Roads*
- *Christmas Tree Disposal*
- *Road Clearance from Storm Damage*

How a Fitchburg Chipper solves these problems:

Joseph J. Coffey, Superintendent of the Hartford Incinerator, tells you in his own words how Hartford solves these problems: BANANA STALKS: "We chip 2 to 4 tons of banana stalks each week. These stalks will not burn regardless of heat in the furnaces, and we had to dump them until the Fitchburg Chipper went on duty." CHRISTMAS TREES: "During the post-Christmas season we receive many Christmas trees which we can now get rid of without the trouble of watching for burnt-down spike-like stubs which cause much trouble with the incinerator equipment."

BRUSH DISPOSAL: "Our Highway Division has used our Fitchburg Chipper to clean up the brush and branches along newly developed road areas. By chipping brush, the city saves in use of both manpower and trucking costs." ROAD CLEARANCE: "If we get hit again by hurricanes or bad wind storms, we now have an excellent piece of equipment that will enable us to readily open up the streets for emergency traffic by reducing the fallen branches to chips."

As to maintenance, Mr. Coffey says: "Our Fitchburg Chipper will pay for itself in a very short time. Maintenance, so far, is just keeping it supplied with gasoline and fully lubricated. It is easy to handle, easy to store, and very easy to use."

Get the facts!

Mail coupon for big, FREE, colorful booklet. Specifications, operating data, explanation of exclusive Fitchburg Safety Spring, actual letters from users.

FITCHBURG ENGINEERING CORPORATION

Read what leading Fitchburg users say

LINE CLEARANCE

The Shade Tree Service Company, Webster Groves, Mo.: "Our figures show that production has been increased by a good 25% with the use of the Fitchburg Chipper. One man can operate the chipper with ease. He alone can handle as much, and more, brush in the same length of time as could two men loading brush on a platform body."

POWER COMPANY

Rockland Light and Power Company, Nyack, N. Y.: "Our men have been particularly pleased with their Fitchburg Chippers. They are rugged and reliable and the convenience of flexible, yet instant brush disposal has the advantage of promoting good public relations and still gives us efficiency."

Send for FREE BOOKLET

Fitchburg Engineering Corporation
Fitchburg, Mass., Dept. AC-16

Send my Free Chipper Booklet.

Name_____

_____
(Position or Company)

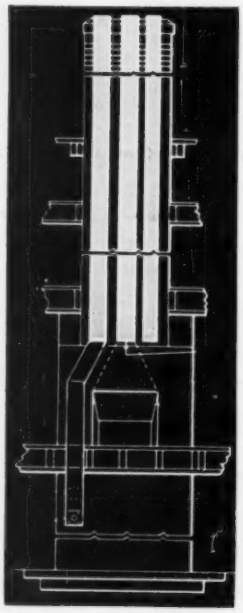
Address_____

City_____ State_____

CLAY FLUE LINING

CUTS FIRE ALARMS
REDUCES FIRE LOSSES
LOWERS INSURANCE RATES

Available in round, square and modular sizes — regular fired or Glazed.



Built-in protection! Clay Flue Lining permanently fireproofs the chimney . . . gives proved protection against the second most common cause of destructive fires.

Better draft! The chimney stays smooth and clean . . . draws better . . . with no dangerous accumulations of soot.

Lasting quality! Acid gases in smoke and fumes can't affect scientifically fired clay. It doesn't crack from high temperatures . . . doesn't flake off . . . *never wears out!*

HELP PROMOTE BETTER FIRE PROTECTION IN YOUR COMMUNITY . . .

Defective flues and chimneys are responsible for an annual fire loss of 25 million dollars — second only to fires caused by careless smoking. To help stop this needless waste in your community . . .

CLAY FLUE LINING *Institute*

WRITE FOR Your Free copy of "A Standard Ordinance for Chimney Construction." Urge its adoption in your city's building code.

You Can Trust This Mark of Quality

CLAY FLUE LINING INSTITUTE
1618 Ash Street, Akron 8, Ohio

CONTACT AN INSTITUTE MEMBER WHEN YOU WANT THE BEST

American Vitrified Products Co. • Dee Clay Products Co., Inc. The Evans Brick Co. • The Kaul Clay Mfg. Co. • The Kopp Clay Co. • Larson Clay Pipe Co. • Malvern Flue Lining, Inc. Mill Hall Clay Products, Inc. • Natco Corp. • Peerless Clay Corp.

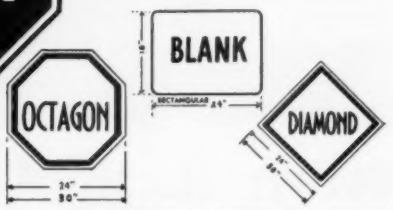
FL-1154-19D

CUT MAINTENANCE COST *in* HALF *with* GRACE "EZ-ON" TRAFFIC SIGN FACES:

'EZ-ON' Sign Faces—patented, are made of 30 ga. steel in 3 shapes and 3 sizes—octagon, diamond, rectangular—24" and 30" and 18" x 24". The former in red and yellow, the latter in white only. Standard copy or special—or the rectangular Face blank if you wish. They meet every need—at ½ the regular cost!

3 SHAPES . . . 3 SIZES!

'EZ-ON' Faces slip on right over present signs, hence they're never out of service—in less than 5 minutes! Used by state Highway Dept's. all over the United States.



1. Slip 'EZ-ON' Face over old sign. Note wide flanges.
2. Then bend flanges backward holding 'EZ-ON' Face in place.
3. Use Crimping Tool to clamp flange and secure Sign Face.

GRACE 'EZ-ON' Sign Faces are reflectorized and meet all specifications for brilliance and reflective qualities. INVESTIGATE . . . and save. Their cost is HALF that of ordinary signs! SEND FOR SAMPLE SIGN.

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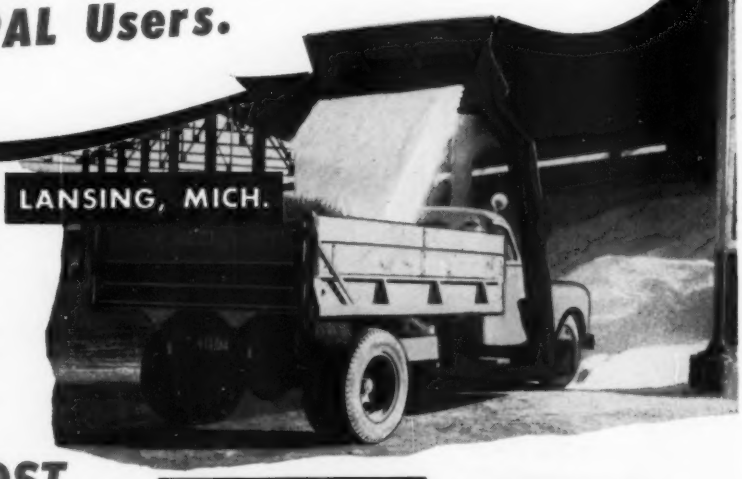

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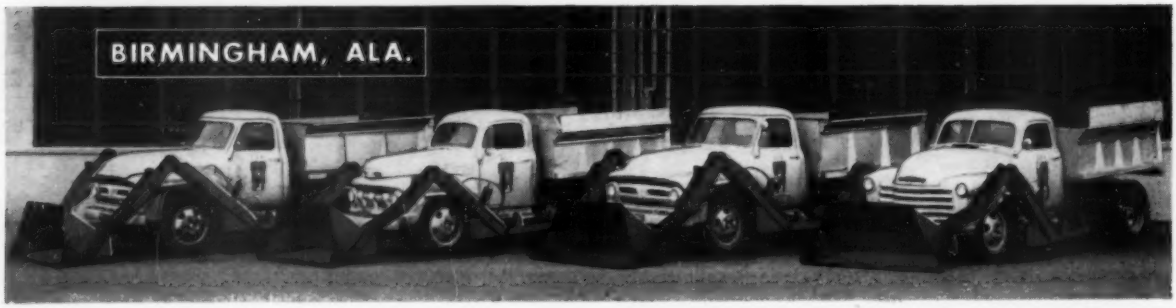

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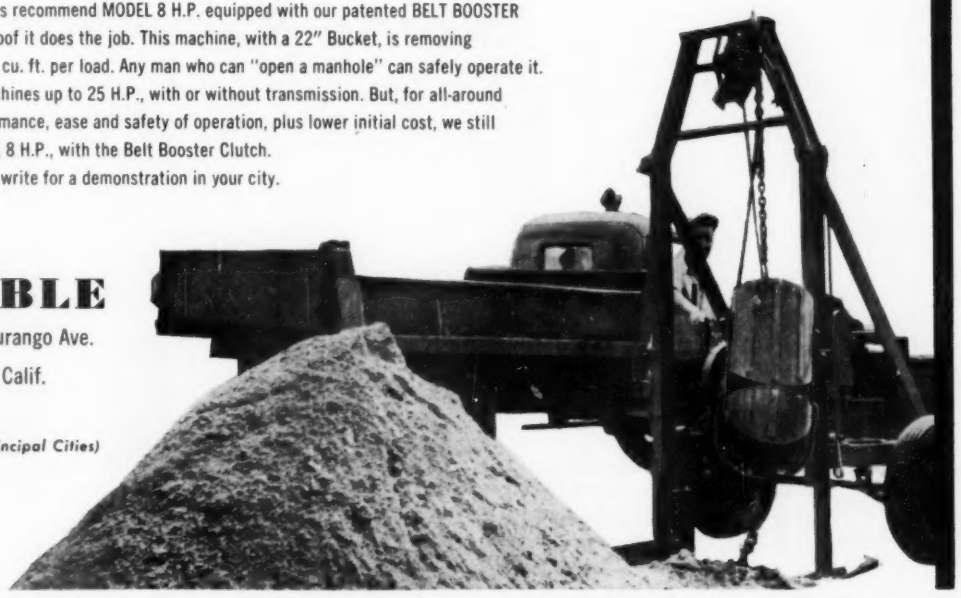
To get more facts, write for a demonstration in your city.



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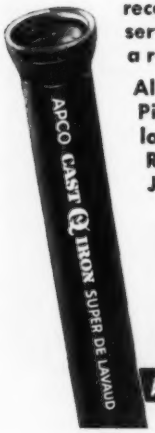

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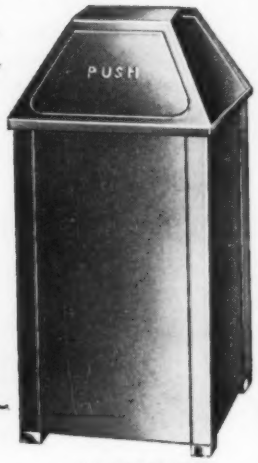

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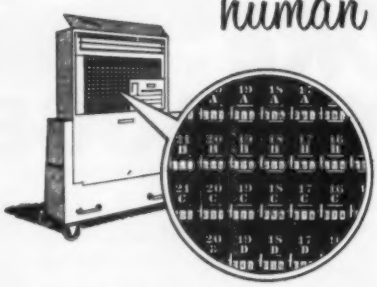
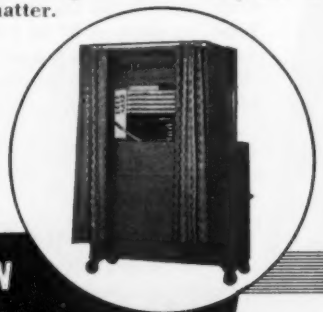


Each candidate's total is accurately and permanently recorded on own individual counter.

T. H. O'Donoghue, City Clerk, writes:

Our recount in the City of Ferndale was completed in less than one day's time and as anticipated there was no discrepancy or change of any kind in the recount result, as indicated on the 26 voting machines in use in our City.

Recounts are not a desirable or pleasant thing for any City Clerk or Election Commission, but with voting machines they are a very simple matter.



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YOU can find out what other cities are charging for water by purchasing "Modern Water Rates," just published by THE AMERICAN CITY. It provides data on rates used in 130 separate water systems selected from 23 states and covering cities ranging in size from Chicago, Illinois, to Alto, Texas (population 1,007). Of the rates selected, about 12% are used by private water companies and the balance are from public systems of some type.

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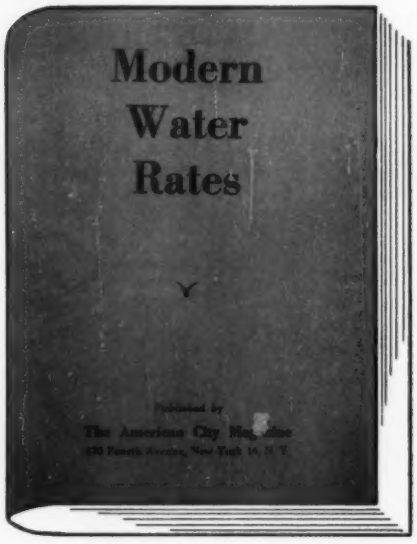

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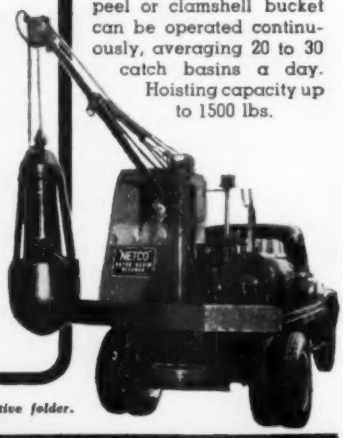

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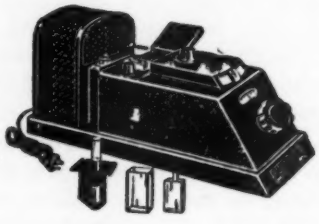

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JANUARY 1956 The American City

South Milwaukee Water Works

Ends Sprinkler-Restriction Worries

Upflow desludging basin, new pumps, and transmission mains bring capacity to ample figure

By ELROY F. SPITZER*
Engineering Editor
The American City

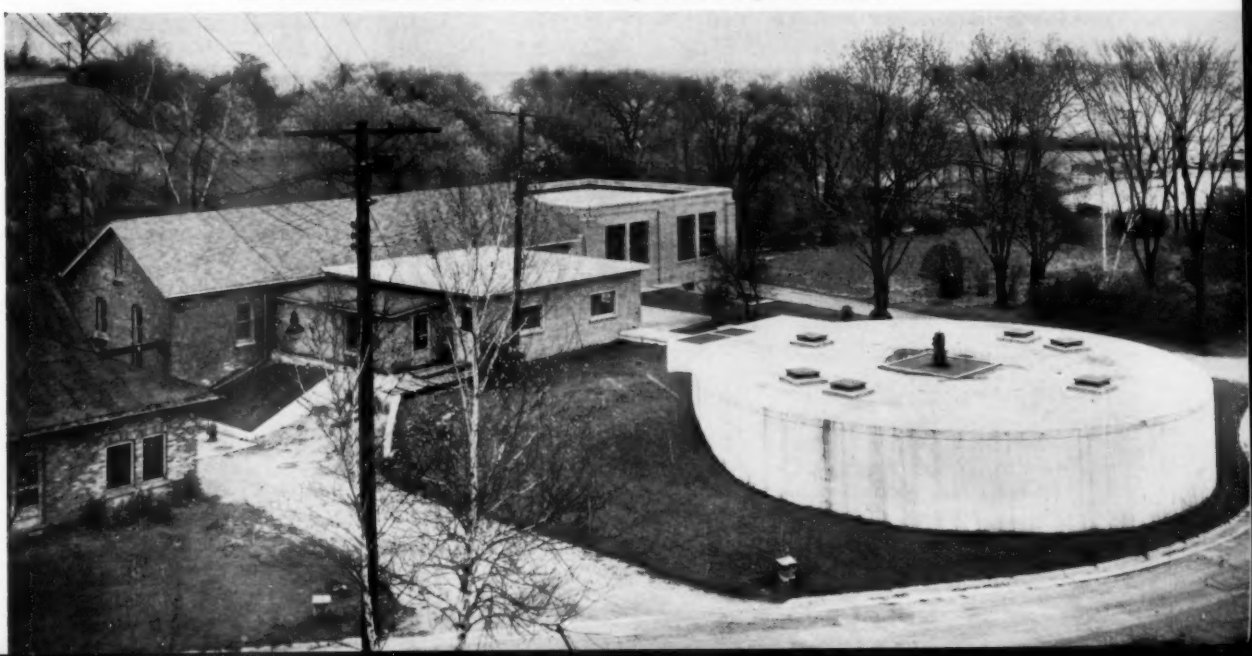
IN South Milwaukee, Mr. Average Citizen can become uncomfortably indignant over the subject of water shortage. He knows that the water comes from Lake Michigan and he sees no danger of its running dry. Consequently, when, in 1950, sprinkling restrictions were first imposed here, the public accepted the order with mixed feelings and considerable skepticism. Explanations were certainly in order, but members of the Water Commission felt that instead of making excuses, they should tell the people of corrective measures both under construction and planned for the future.

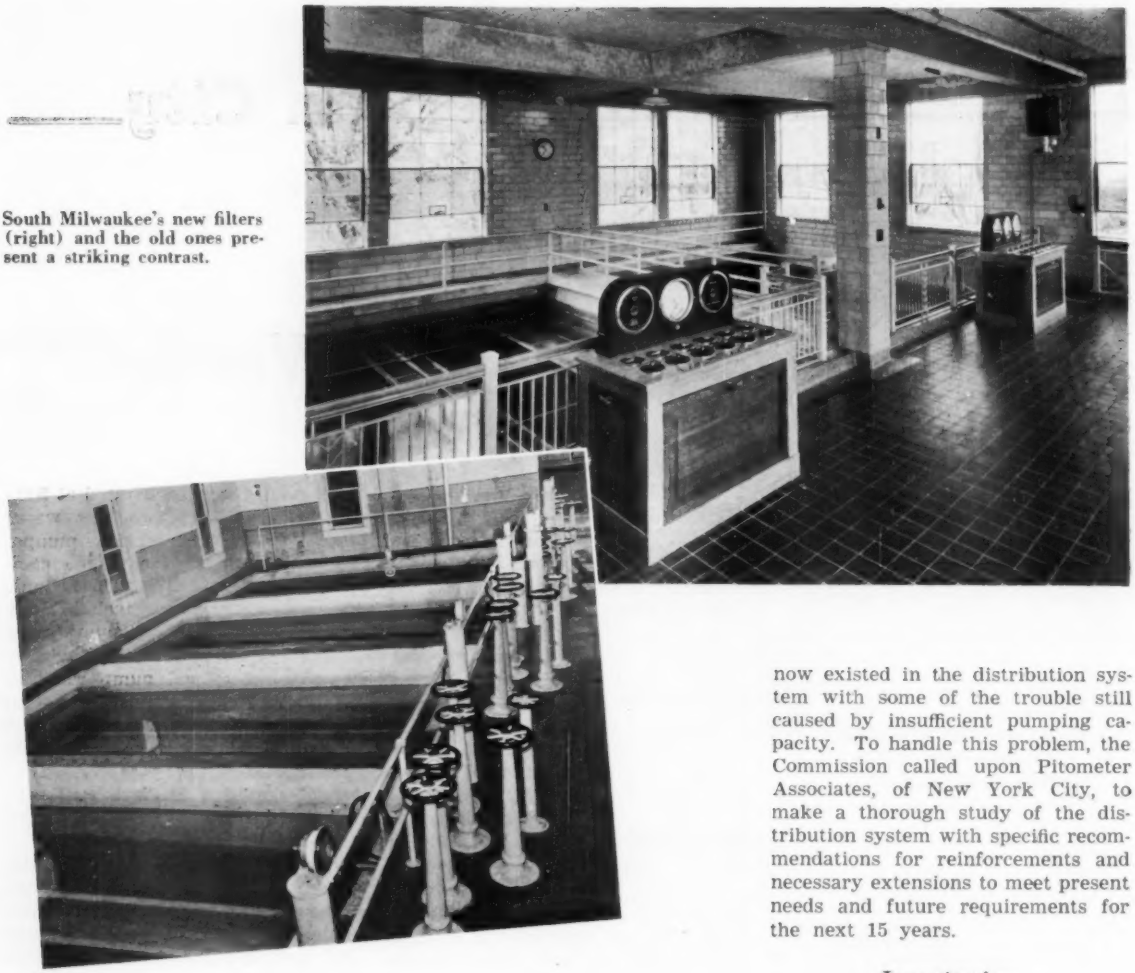
Actually, the Commission anticipated some increase in demand in 1947, when it replaced the existing 80,000-gallon elevated tank with one of 500,000 gallons capacity. At that time, plant facilities included five rapid sand filters, each rated at 500,000 gallons daily; two raw-water pumps; two high-service pumps; and two clear wells having a combined capacity of 1,200,000 gallons. The raw-water pumps included one steam-driven centrifugal pump rated at 2,500 gpm and one electrically powered centrifugal pump rated at 3,000 gpm, both against a 30-foot head. A 2-mgd cross-compound pumping engine and one electrically driven centrifugal pump rated at 4 mgd against a 210-foot head comprised the high-service system. All are Allis-Chalmers units.

In 1948, a second Allis-Chalmers electrically powered centrifugal pump was added to the high-service group. This has a rating of 1,000 gpm against a 240-foot head. Within recent years, a new impeller has been installed in the old 3,000-gpm

* With this issue, Mr. Spitzer, formerly city engineer at South Milwaukee, Wis., becomes the new Engineering Editor of THE AMERICAN CITY. For full details on this and other editorial staff changes, please turn to page 5.

The new additions fit themselves conveniently to the old plant structures.





South Milwaukee's new filters (right) and the old ones present a striking contrast.

pump to increase its rated head from 210 feet to 240 feet and allow it to operate simultaneously with the new units.

Demand again increased when the city began to feel the effects of post-war growth. The Commission realized that if a water shortage was to be avoided, increased filtration capacity would be needed—and soon. The firm of Consoer, Townsend and Associates, consulting engineers of Chicago, were engaged to study the matter and recommend a course of action. Contracts for the plant addition were awarded in the spring of 1950.

Gained: Two New Filters

The program gave the plant two new filters, each double the size of the old units and a 4.5-mgd Permutit Spaulding Precipitator. The precipitator is an upflow type of desludging basin used in place of flocculation and settling tanks. New chemical feeders also had to be supplied.

The project furthermore included the installation of two Peerless vertical-shaft turbine pumps to handle the raw water. Each pump is rated at 2,000 gpm against a 30-foot head. The existing 3,000-gpm centrifugal pump used for raw-water pumpage was converted to supply filter wash-water directly from the clear well.

Contracts Let

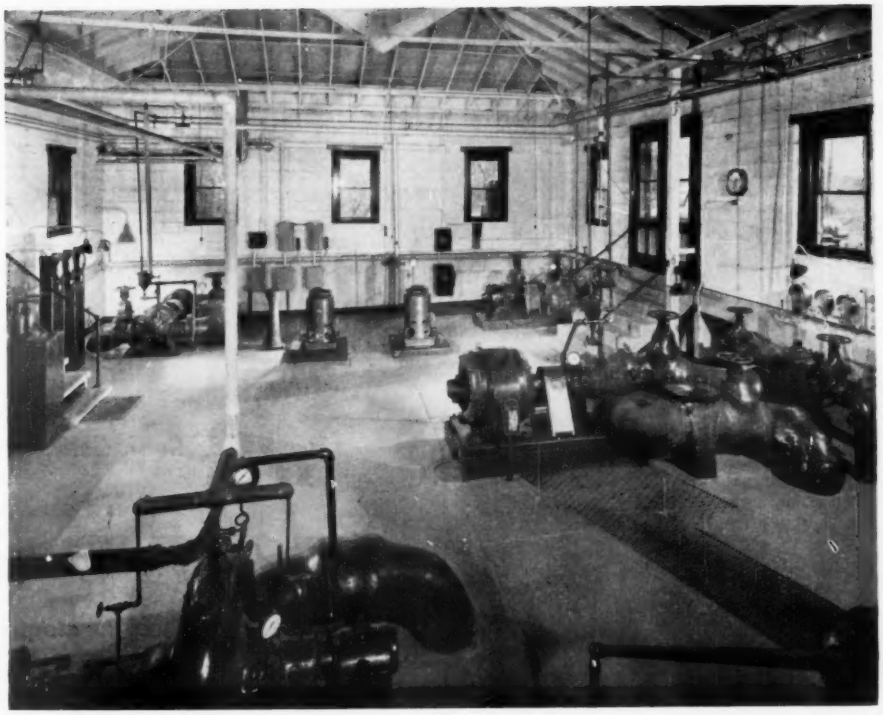
Contracts were let early in the summer of 1950 with a completion date set for early the following year. However, ground had hardly been broken when it became necessary to impose the first sprinkling restrictions. Fortunately, work was under way although one year late.

The added capacity did much to prevent serious trouble, but once the "water shortage" problem appeared, it continued to grow. The bottleneck now existed in the distribution system with some of the trouble still caused by insufficient pumping capacity. To handle this problem, the Commission called upon Pitometer Associates, of New York City, to make a thorough study of the distribution system with specific recommendations for reinforcements and necessary extensions to meet present needs and future requirements for the next 15 years.

Investigation

Measurements of the flows at critical points in the trunk mains and distribution system by recording Pitometers were made to learn how the water circulated through the system, to determine the hydraulic grade lines under various flow conditions, to determine the carrying capacity of the most important mains, and to discover other conditions pertinent to the carrying capacity. Studies were also conducted relative to future growth, industrial expansion, fire-protection requirements in accordance with the standards of the National Board of Fire Underwriters and possible future annexation. Design and general details for reinforcing mains and extensions necessary to meet present needs and future requirements were then developed.

The principal cause of weakness was the lack of trunk main capacity. This will be corrected by constructing two transmission mains. One main, 9,700 feet of 12-inch cast-iron pipe leading from the plant to the



The pumproom holds raw-water turbine pumps (center background), electrically driven centrifugals, high-service pump (center foreground), and a steam-driven unit (foreground).

north portion of the city, will be constructed soon. Plans call for installation of the second main in the spring of 1956. This main, which will extend from the plant through the business and industrial section to the northwest section of the city, includes 5,000 feet of 20-inch pipe, 700 feet of 16-inch pipe, and 5,000 feet of 12-inch pipe. Mechanical-joint, cast-iron pipe will be used throughout the project. Eventually, the two mains will be connected to form a "loop."

The transmission mains will be connected to the distribution systems at all intersecting streets with a "round connection." Such a connection is made up by using a "tee" into the existing main instead of a "cross." This type of connection has several advantages. One in particular is the ability to stop the flow of water from the transmission main to the distribution system at any given point by using only one valve without affecting either of the mains.

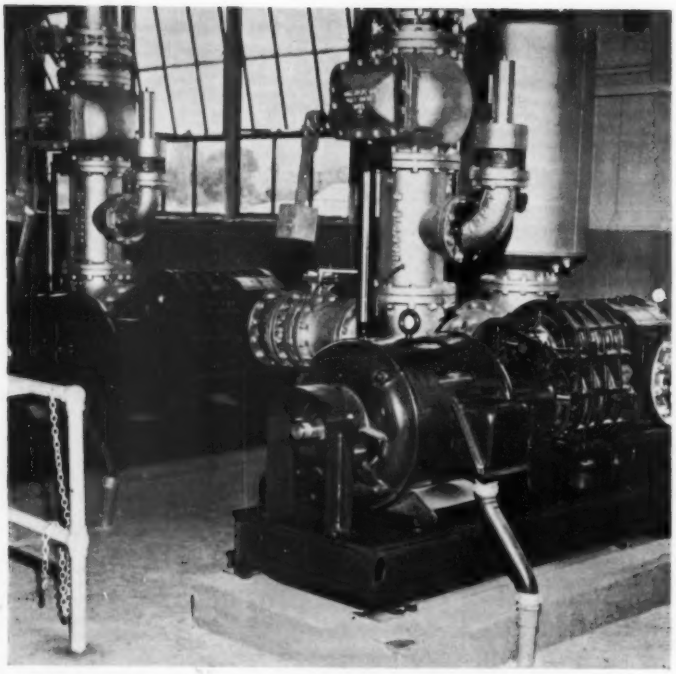
Plant Revision

Also included in the program is the retirement of the two steam pumps, raw water and high service, and replacing them with dual-drive units. Both pumps will be double-shafted, centrifugal pumps, using electric power under normal operations and gasoline or diesel power for emergency use. Approximate capacities will be 4.5 mgd against a 40-foot head for the raw water, and 4.5 mgd to 5.0 mgd against a 240-foot head for high service.

Other proposed changes include the installation of a small gasoline-driven generator for emergency purposes and the replacement of two old high-pressure boilers with a low-pressure boiler for heating purposes. The existing boiler room will be converted into a meter shop and service building for our equipment.

With the new mains and additional pumping capacity, South Milwaukee should again be free from sprinkling restrictions. However, the Commission realizes that continued growth means constant vigilance. Increased demands will mean a second intake into Lake Michigan, increased filter capacity, and more clearwater storage. But the present "shortage" is on the way out, permitting the Commission time to plan for the future.

Chemical feeders stand in a separate room; fluoride feeder is in the background.



Helical blowers provide air for activated sludge and sludge reaeration.

An Updated Activated Sludge Plant

Lodi, Calif., remodels one of the nation's early activated sludge plants, modifying its design to incorporate present-day principles

THE people of Lodi, Calif., always have taken sewage treatment seriously. Back in 1923, their treatment plant made use of the best and most progressive design that the engineering profession could produce. The fact that it has served for so many years without requiring major revisions is a tribute both to the engineers who prepared the plans and to the operators whose skill enabled the plant to perform its duties creditably.

The plant was a pioneer user of the activated-sludge treatment, but the flow sheet of this old plant was far different from those used today. It used no primary sedimentation basin or sludge digester, but wasted the excess undigested activated sludge from the secondary sedimentation basins directly to open sludge-drying beds. The air-dried activated sludge, often classed as good, low-grade fertilizer, found ready use in the grape vineyards abounding the area. For pretreatment, the plant used Dorrco rotary fine screens that removed those particles that would not pass a 20-mesh screen.

Other Revised Plants

The plant design followed that used in Milwaukee, an installation that has commanded world-wide attention, particularly through its sale of sludge for a fertilizer. It also resembled that at Tenafly, N. J., which also found a ready market for its undigested activated sludge.

However, in spite of this interesting design, the engineering profession has learned how to do better. Milwaukee, despite its fame, has long regretted making its plant into a fertilizer factory. Tenafly has rebuilt its plant to new, more sturdy designs. And today Lodi is following the same path.

One of the chief problems at this old plant was the foul odors that emanated from the sludge on the drying beds. Since the sludge was undigested, it continued to decompose, and the odors attested pungently to the action. Another complication arose during the war when the state refused to permit the city to discharge cannery wastes directly to the Mokelumne River. The city had no luck at all in treating these wastes in its already overloaded plant.

In recent years, civic pride spurred Lodi into a program that corrected these twin problems that were becoming sensitive points in an otherwise prosperous and growing municipality. Today the remodeled plant has returned to the forefront as a symbol of leadership in municipal sanitation. It now has been rebuilt to a well-tested design, completely adequate for the needs of this thriving area.

In the revised system, the plant will handle no cannery wastes. These will be treated in open lagoons, with the effluent being used for irrigation. Thus none of these wastes will go directly to the river. The industrial waste site is approximately five miles southwest of the city in the agricultural area. The plant also has dispensed with the old fine screens.

The sewage entering the remodeled plant first passes through a new Chicago Pump Company aerated grit chamber. This is designed to handle successfully a flow of 4 mgd (million gallons daily) or 0.4 mgd above the design flow of the plant. It not only removes the inorganic grit in clean condition, but also freshens the sewage, making its subsequent treatment easier.

Next, the sewage passes through a Chicago Pump Company 25M comminutor able to receive 3½ mgd of sewage. This device, unavailable when the original plant was built, shreds the large solids making them easier to remove in the settling basin and reducing danger of clogging in sludge pumps. The comminutor basin has been designed to hold two units; however,

in the present plant only one has been installed.

The sewage then enters the existing wet well where three Chicago Pump Company non-clog trash pumps lift it to the primary sedimentation tank. Pumps labelled No. 1 and No. 3 are two-speed units capable of delivering 700 to 1,400 gpm, and 1,000 or 2,000 gpm, respectively. Pump No. 2 is a single-speed unit capable of delivering 2,000 gpm. An electrical controller automatically starts and stops the pumps at predetermined water levels in the wet well.

The sewage next enters a Dorr Sifeed Clarifier, 70 feet in diameter, with a 13-foot sidewater depth. This was designed to provide a 2-hour detention period. The overflow rates at design flow are 935 gallons per square foot per day, and 16,000 gallons per foot of weir per day.

Old Aerators Used

The settled sewage then passes through a Parshall flume having a 2-foot throat, and enters the aeration tanks used in the old plant. A Bailey meter records the flow measured by the flume. The original designers provided four aeration tanks, each 124 feet long, 12 feet wide and 15 feet deep, of ridge-and-furrow type and arranged for them to be operated in parallel. However, to prevent short circuiting, the tanks were rearranged in pairs so that two will operate in series. They provide 4.3 hours of detention at design flow. The old rotary blowers supplying air to the tanks were retired in favor of two 2-speed Chicago Pump Company helical blowers. The 2-speed units permit automatic reduction in air supply in the early morning hours, when the volume of sewage entering the plant drops.

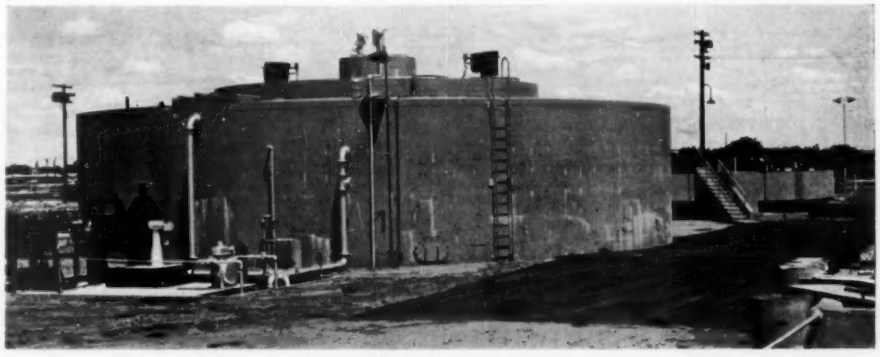
After the aerobic bacteria have been permitted to do their purifying work in the aeration tanks, the sewage then flows to the two existing secondary sedimentation basins. Each is 30 feet square, 19 feet deep, using Dorr sludge and scum removal equipment. These also are part of the 1923 plant. At present flow conditions, they provide two hours of detention at an overflow rate of 1,180 gallons per square foot per day.

The sludge drawn off the secondary clarifiers goes to a reaeration tank that has a 50,000-gallon capacity. This tank is equipped with air diffuser plates used to maintain aerobic conditions in the sludge. The sludge is then pumped to a division box mounted over the inlet channel of the Parshall flume. The division box separates the return sludge from the waste. Return sludge pumps provided are capable of returning sludge at rates from 20% to 50% of the plant flow. The waste activated sludge goes to the primary sedimentation tank where it is removed with the primary sludge.

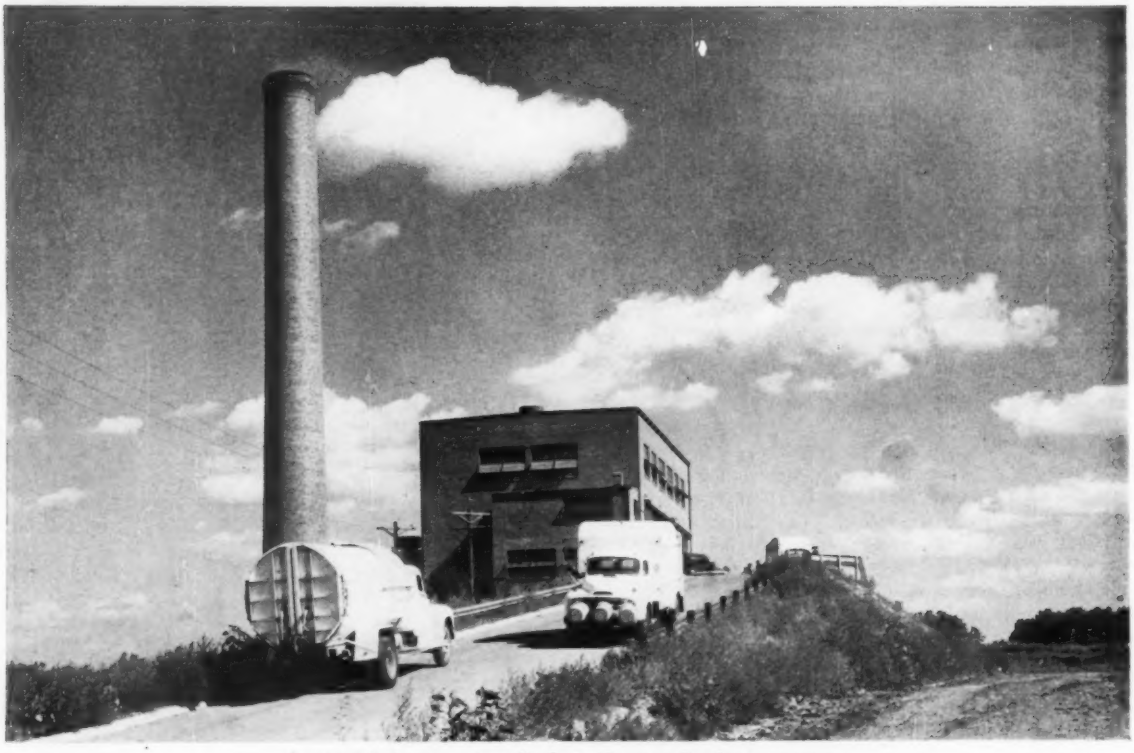
The sludge from the primary clarifier is transferred by Chicago Pump Company Scru-Peller pumps to the digester. The digester has a fixed cover and is equipped with two Dorr draft-tube mixers. It is 65 feet in diameter and has a 20-foot sidewater depth that gives it a capacity of 75,400 cubic feet. To maintain the sludge at a temperature warm enough to encourage good digestion, the plant utilizes a Chicago Selas heat-transfer system that employs direct transfer in the form of hot gases passing through the sludge. Excess gas not required by the heater goes directly to a Varec waste-gas burner to be burned. An Emsco gas meter records the total amount of gas generated.

The digested sludge goes to the existing drying beds, whose size is adequate to care for the city's need comfortably. With the relatively dry climate in this area, and the sandy nature of the soil, the drying beds operate satisfactorily without underdrains.

The revised plant was designed and its installation supervised by Mr. M. Carlton Yoder, consulting engineer, Berkeley. Mr. Yoder was at one time sanitary engineer for the city and in that capacity operated the old treatment plant.



(Above) The plant has one comminutor and a basin built to receive a second. (Right) The digester, foreground, the clarifier and grit chamber, rear, constitute the major improvements to the remodeled plant.



A convenient access ramp leads to the new Omaha incinerator.

An Incinerator Is a Good Investment

. . . so investment houses build an incinerator for Omaha, Nebr., and everybody benefits

By HERBERT H. ULRICH
Chief Smoke Regulation Engineer
Omaha, Nebr.

IN most stories of this type, the author pays credit to those responsible for an improvement in the final paragraphs—a blunt and positive device to let the reader know that the story is over and to give those mentioned an opportunity of showing the article to their families. However, the credits in this story are so unusual that we are obliged to mention them at the outset.

Pigs are most deserving of credit for this incinerator, and sickly ones at that. They are not necessarily local pigs. Some live in New Jersey, some in Des Moines, and some in California—all the pigs that ever fed on uncooked garbage and became sick are responsible for this improvement.

Next deserving are the veterinarians who uncovered the fact that the uncooked garbage was causing all this trouble to the hogs. These men diagnosed the porkers' illness as vesicular exanthema, known popularly as VE. Following in line for credit are our state legislators who prohibited the feeding of raw garbage to hogs and, in so doing, created a first-class emergency in Omaha.

The emergency focused attention

The plant has a rated capacity of 375 tons per day and uses a 1,200-yard storpit that is easily accessible.

on our city's sanitation procedures. Among those eyeing the problem were certain local financial firms which recognized that a well-engineered solution to our refuse disposal problem could be a wise investment. This conclusion was welcome news to the city officials who would have had trouble raising the money out of general funds.

One of these investment houses, Kirkpatrick-Pettis Company, proposed that a nonprofit corporation build the incinerator and lease it to the city for a 10-year period when the city would assume title. This corporation agreed to handle all financing, engineering, and construction details and erect an incinerator in keeping with the best engineering consistent with the city's specifications. After a review of this proposal by the courts, the city accepted the proposal. The organization became known as the Omaha Incinerator Corporation, with D. L. Pettis, vice president of the investment house, serving as corporation president.

Design Details

The incinerator that was built has a design capacity of 375 tons per day. Its total cost was $1,111,760, or approximately $3,000 per ton of rated capacity. This represents the actual basic cost plus interest on deferred payments over the life of the 10-year contract. Those familiar with incinerator costs will recognize that this sum is not excessive, in view of the fact that the incinerator will operate 24 hours a day. A 2-mill levy assessed for the specific purpose of financing refuse collection and disposal pays for this obligation in quarterly installments through the 10 years of the corporation's life.

The incinerator, built by the Pittsburgh-Des Moines Steel Company, consists of three twin-cell units, each equipped with a Flynn and Emrich hydraulically operated stoker. It is served by a 1,200-cubic-yard storage bin that is accessible from a concrete unloading platform.

Getting Our Operating Data

Although the incinerator does not have a scale, in the author's opinion, every incinerator should have one. We have been able, however, to use a city scale located a short distance away to determine actual weights. This arrangement, though awkward, gives us the needed operating data.

The 1,200-yard storage pit will hold about one day's supply of refuse. Since the incinerator operates 24 hours a day, the storage bin is emptied in a three-shift operation. I do not believe it advisable to store garbage and refuse longer than one day for it not only presents a fire hazard but a potential source of foul odors and rodents as well.

A P&H bridge crane that spans the charging floor and the storage pit feeds the refuse into the furnaces. The crane has a capacity of 3 tons, and is equipped with a 2-yard Blaw-Knox clamshell bucket. This crane can easily keep up with the needs of the three furnaces.

As noted previously, the crane feeds any of three double-cell furnace units. Each unit is individually equipped with a Beaumont-Birch charging gate, individual Flynn and Emrich inclined rocking-type grate, and an ash discharge hopper and gate.

The inclined grate has been particularly useful. The charging gates are placed at the backs of the furnaces so that the refuse feeds onto the upper portion of the inclined grates. The rocking action of the grate sections gradually forces the refuse down the incline until it reaches the bottom. At that time, and with attentive operation, the refuse is thoroughly burned and can be dropped into the discharge hopper as an inert ash.

Rated Capacity

In each of the three individual units, we have approximately 140 square feet of grate area, or 1.12 square feet per ton of rated capacity. Each unit has 1,275 cubic feet of combustion-chamber volume, or 10 cubic feet per ton of rated capacity.

The volume of the expansion chamber for each unit is 1,835 cubic feet per furnace, or 10.5 cubic feet per

ton of capacity. So far as present tests and experience indicate, this volume is large enough to remove enough fly ash from the stack gas to meet our air-pollution ordinances. We have not had to supply any special equipment to remove the fly ash.

Combustion Chamber

Flues leading from the combustion chamber to the expansion chamber are 5½ by 6½ feet in cross section. Each furnace has been supplied with two additional openings, each 10 inches square, one at the front and one at the rear of the combustion chamber for the admission of secondary overfire air. Experiments so far suggest that part of the air supplied through the upper or drying part of the grate tends to act as secondary air, and we have had no need of opening these secondary air ports more than 10% to 20% of their total area.

The furnaces use natural gas for an auxiliary fuel when the refuse is wet or has insufficient calorific value. The incinerator stack is 150 feet high and is built of two thicknesses of special radial hollow tile with refractory lining throughout. It has a target wall, consisting of additional refractory lining to a height of about 30 feet above the base of the stack.

Our incinerator operations have only recently reached their maximum. During this period, we have had to train our help, and run tests on our operation to be sure that the plant is capable of burning the 375 tons per 24 hours as rated. Our tests have assured us that it has that capacity.

At the same time, we have made careful air pollution determinations under these test conditions. At no time did the smoke exceed a density of half the No. 1 Ringlemann color, whereas the Omaha smoke code accepts a No. 2 reading.

Even more important is the fly-ash emission from the stack and combustion chambers. The average of three tests showed 0.3214 of a pound of fly ash per 1,000 pounds of stack gases, adjusted to 12% carbon dioxide. The highest figure was 0.698, and since the Omaha code allows 0.85 of a pound, we feel that present operations are at an exemplary level. As long as it remains under the jurisdiction of this department, every effort will be made to keep it so.

This new incinerator represents an advance in Omaha's refuse sanitation program that has won popular approval. This is the first time that the city has provided complete garbage and trash pickup and disposal by an incinerator, with the burned residue placed in sanitary landfills. A private company does the collecting with a fleet of 35 trucks. Each householder places the refuse in a standard container not larger than 30 gallons. The container is placed either at the doorstep or at the rear.

All things considered, Omaha is cleaner and more sanitary because many of the nation's garbage-fed hogs became sickly.

Street Sweeping Daily Record

CORAL GABLES, Fla., keeps its street cleaning work on a business-like "accounted for" basis by means of a detailed daily street-sweeper report. This gives pertinent details about the weather, the time the sweeper started to work and stopped, the total hours worked, the mileage traveled, and the amount of street debris collected.

It also gives the operator a place to record the time required to fill and install both the rotary and side brooms; it supplies a place to record other miscellaneous maintenance performed and permits each team to be transposed into costs. At the bottom of the sheet is a place for instructions to the maintenance garage for service. On the back of the blank is a complete map of Coral Gables, supplied so that the operator can record the route that he traveled during the day and the spot where he dumped his hopper load of debris.

Coral Gables has a population of 30,000 and occupies an area of 12 square miles, entirely within but separate from Miami. It has 40 miles of streets with curbs and operates its two sweepers on these streets only. It has 180 miles of paved streets without curbs.

The sweepers operate from midnight to 7:00 a.m. each day. Each machine sweeps an average of 420 gutter miles per month. Each machine also is equipped with a Service recorder that provides a mechanical record of sweeper operating performance. This is used as a double check on sweeper operations.

Street sweeping is under the direction of Harley Pittman, superintendent of streets, parks and waste.

CITY OF CORAL GABLES

DAILY STREET SWEEPER REPORT

_____ 195__ OPERATOR _____ WEATHER: CLEAR ☐ RAIN ☐ COLD ☐ NORMAL ☐

BEGAN WORK _____ AM / PM — STOPPED WORK _____ AM / PM

BEGAN RAINING _____ AM / PM — STOPPED RAINING _____ AM / PM

	TOTALS	UNIT COST	TOTAL COST
TOTAL HOURS WORKED			
SPEEDOMETER READINGS:			
START WORK			
STOP WORK			
START SWEEPING			
STOP SWEEPING			
NUMBER OF DUMPINGS			
ESTIMATED YARDAGE ... YDS			
FILLING ROTARY BROOM ... HRS			
FILLING SIDE BROOM ... HRS			
INSTALLED ROTARY BROOM ... HRS			
INSTALLED SIDE BROOM ... HRS			
OTHER LABOR USED ... MEN ... HRS			
HOW USED			
OTHER EQUIPMENT USED			
HOW USED			
NUMBER OF HOURS ... HRS			
TOTALS			

REMARKS

GARAGE SHOULD SERVICE OR CHECK FOLLOWING ITEMS:

OPERATOR WILL INDICATE LOCATION OF DAYS SWEEPINGS AND DUMPINGS ON MAP, OTHER SIDE.

This report tells the street sweeping story in Coral Gables.

Mechanized equipment plays a major role in mosquito-control work in this Chicago outskirt area

Biological aides daily sort out, type, and count all the mosquitoes collected from 15 light traps which collect night-flying insects from 7 p.m. to 7 a.m.

Scientific Mosquito Abatement

A MOSQUITO-ABATEMENT PROGRAM based on long-range scientific principles of permanent control is under way in a 340-square-mile area adjoining the southern city limits of Chicago. Known as the South Cook County Mosquito Abatement District, the huge tract is bounded by the Indiana state line on the east and Will County, Ill., on the south and west. It encompasses 42 incorporated communities, nine townships, and three wards of Chicago—a population area of approximately 500,000.

The Authority

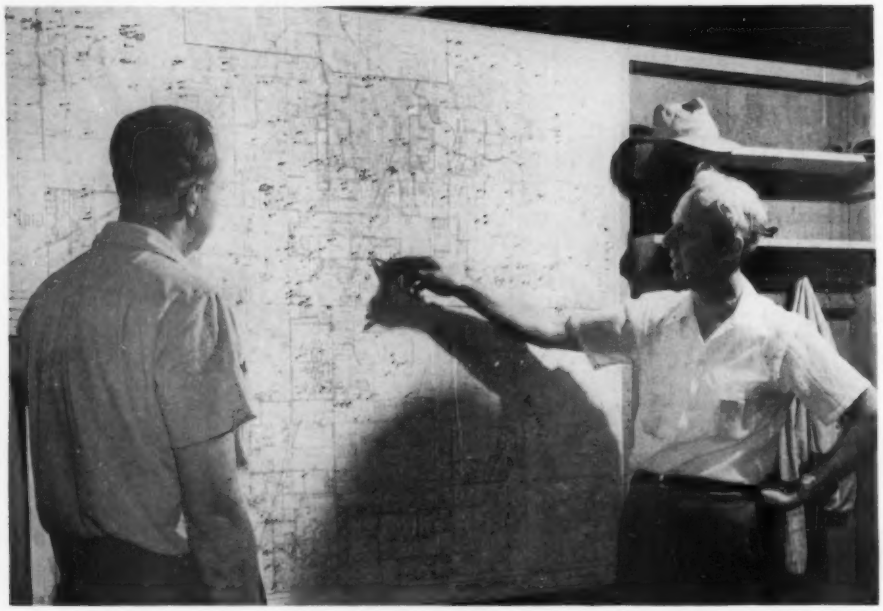
Activities of the new authority are directed by a board of five trustees appointed for four-year terms by the county judge. The trustees include a biologist, an entomologist, a banker, a chemical engineer, and an insurance executive; all serve without compensation. The work is supported by taxes computed at a cost of 25 cents per $1,000 of assessed valuation. A typical district resident with a house valued for tax purposes at $5,000 pays only $1.25 a year for the mosquito-control program.

Operations began in November 1954, with the appointment of William J. Buchanan, a civil engineer with 15 years of service in mosquito control work, as manager. Selection and training of staff and field operators, plus the acquisition of office, laboratory, vehicles, maintenance and warehouse facilities, was begun in December.

A staff of 33 persons for administrative, technical, educational, and operational services was recruited and given an intensive two-week training course in the biology of the mosquito and in control methods, insecticides, and application techniques. Since the peak work load comes in late spring and lasts into September, provision was made for seasonal aides, too. Summer technical help was selected from among college biology instructors and students in the Chicago area.

Approach to the Problem

The South Cook County approach to the mosquito control problem is based on destruction of the insect in its larva stage at the breeding source rather than widespread fogging or spraying to kill the adult. Studies indicated that a long-range program of eliminating and controlling breeding sources would provide progressively better results each year, with a gradual reduction of costs over the years. The alternate method might yield more impressive results in the



Left:
Principal breeding areas in one of the division areas are carefully pinpointed on this wall map.

Right:
The three types of Jeep-mounted spray equipment used are (left to right): Buffalo Turbine Sprayer-Duster, TIFA sprayer, Essick compressed air sprayer.

first year or two, but would provide no permanent relief or cost reduction.

Of paramount importance was the selection of equipment for field operations. Since survey work and larviciding require travel into remote off-the-road marsh areas which bog down conventional drive vehicles, 22 Willys Universal Jeeps, a Jeep station wagon, and four Jeep pick-up trucks, all with four-wheel drive, were selected as basic equipment.

The Jeeps are equipped with three types of high-capacity spray equipment, each adapted to different kinds of chemical control operations. The majority are equipped with 10,000-cfm Buffalo Turbine blowers. The blower uses turbulent air to atomize and apply DDT solutions for large area coverage. Four of the other units are equipped with Essick sprayers with 100-foot hose, and four with TIFA foggers. The Buffalo Turbines are powered by the rear power take-off of the Jeep.

Other Equipment

In addition to a sprayer, each vehicle carries a hand spray, 50-gallon tank of DDT solution, 5 gallons of concentrate, 4 gallons of hand-spray concentrate, shovel, axe, and emergency first-aid kit. Half of the Jeeps and all of the pick-up trucks also carry front-mounted mechanisms for winching out of bogs when necessary. One Jeep is equipped with a sickle-bar mower to cut stands of weeds where necessary to increase the penetration and effectiveness of insecticidal treatment.

Field survey operations began in December to provide the following information:

1. The location, extent and type of breeding sources
2. The kinds of mosquitoes present
3. The types causing the most annoyance
4. The nature of topographic and other physical features affecting control procedures
5. A check on the effectiveness of control operations.

Crew Assignments

Each of the 24 field Jeep operators is permanently assigned an area of from 15 to 25 square miles in size. Trained in the preparation of survey maps, the crews plot the location of each breeding source, the name of the property owner, use of the land, and note a description and give the cause of standing water. Samples of larvae are taken from each source for laboratory identification. Typing of the 30-odd varieties is important in larvicidal treatment since the timing and type of chemical application necessary varies with different species. A comprehensive record of the treatment applied is kept along with a record of periodic inspections made.

An important adjunct to this work is the maintenance of 15 insect-light traps. These are located strategically throughout the district to collect samples of night flying insects from 7 p.m., when the trap is automatically illuminated, to 7 a.m., when the contents are collected and taken to the district laboratory for analysis. The mosquitoes in each trap are counted and classified according to species, sex, size, and other characteristics.

Also used are biting tests in which an aide exposes an arm at the light trap site. A record is kept of the species that land and bite and the hours of the day at which they are most voracious.

Studies show that nearly 90% of the mosquitoes in the South Cook County area are of the "floodwater" and domestic types. The *Aedes vexans*, a floodwater variety that lays its eggs on dry ground during the summer, is the most common single species. Its eggs mature through the freezing winter or hot dry periods. When flooding occurs, they develop rapidly from egg to severe biting adult in a week or 10 days.

Second most frequent variety is the *Culex pipiens*, which is a still water breeder. It develops commonly in such places as tin cans, rain barrels, areas of pollution such as septic tanks, drainage basins, and other such sites.

A combination of three control methods has been introduced:

1. Source reduction in terms of eliminating or reducing the size and number of breeding sites through draining, filling, or other alteration.
2. Natural methods such as the introduc-

tion of top-feeding minnows and natural enemies, and removing or controlling vegetation and controlling water levels.

3. Chemical control for both larvae and adult mosquitoes.

Types of insecticides used in the control work include:

1. A 25% emulsible DDT concentrate diluted with water to 2½% and applied by blower or hose spray.

2. No. 2 fuel oil, or equivalent, applied by hose or the Buffalo Turbine coarse spray, and employed principally in polluted areas for pupa control.

3. Pyrethum concentrate, diluted 1 to 9, is used in special cases where there are fish or livestock which might be affected by other toxic chemicals.

4. A 10% granular DDT dust in 60 mesh vermiculite is employed for pre-hatching in dry spells since it is heavy enough to drop through vegetation. Applied by the Buffalo Turbine or hand duster, it remains dormant until flooding occurs.

5. Finally, small gelatinous capsules, Tossits, are used in such areas as small woodland pools inaccessible except by wading.

Spraying Schedule

Each operator sets his own schedule for chemical treatment of trouble spots. Timing is important because he has only a few days during which the larva is subject to chemical destruction.

The summer mosquito cycle starts with the larval season beginning in late April or early May with the spring, woodland pool varieties. Other types, the floodwater, the *Mansonia*, which is troublesome to destroy because it breeds beneath the surface of the water breathing through a "snorkel" tube, and the domestic variety appear at different periods throughout the summer and taper off until late September or October.

Off-season work is devoted to drainage operations, soil sampling, building access roads into remote producing sites, and modification of equipment on the basis of summer experience. Starting in February, potential floodwater sites are dusted with granules for pre-hatch control. Since summer holidays are out of the question in mosquito control work, employee vacations are scheduled during the winter months.

The 1955 fiscal year provided for the expenditure of approximately $334,000, including land, buildings, and purchase of heavy equipment, for the district's operations.

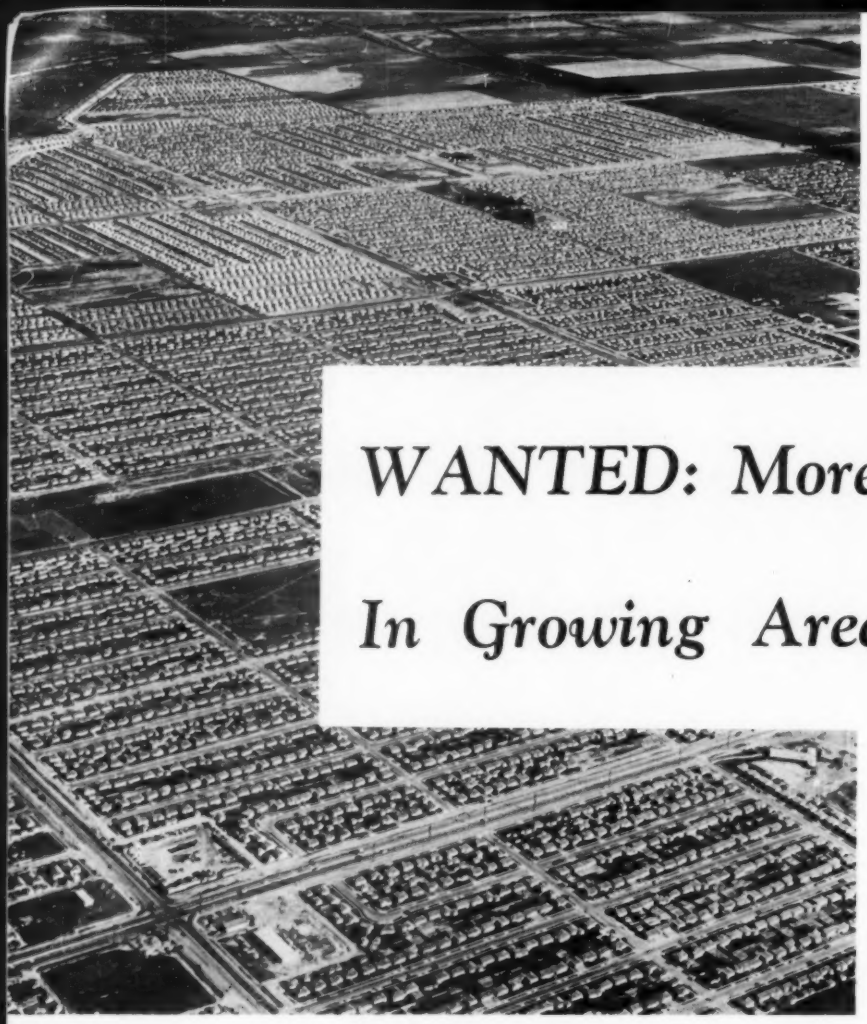
Those Utility Relocation Costs

THE problem of who pays when utilities are relocated because of highway improvement was considered in several state legislatures this year, according to a study by the National Highway Users Conference, Washington 4, D. C. Wisconsin joined with the states of California, Connecticut, and New Jersey in permitting reimbursements for utility relocations when necessitated by expressway construction.

Connecticut amended its statutes (S.B. 440, P.A. 350) to provide that the cost of all relocation or removal of public service facilities on trunk line highways shall be shared equitably between the highway department and the utility. The law previously provided that such sharing applied only to "controlled-access" highways, thus limiting benefits.

The Wisconsin Milwaukee County expressway law was amended (H.B. 526, Ch. 574) to authorize the expressway authority to order any town or village or city to relocate their public utility facilities when necessary because of an expressway project. The cost of relocating or replacing like facilities shall be borne by the expressway authority. In the case of privately owned utilities, two-thirds of the net cost of relocating such facilities shall be paid from funds furnished by the expressway.

New York, however, requires public utility corporations to move their facilities at their own cost when located on county roads, if they constitute obstructions to the use of the highway by the traveling public (S.B. 684, Ch. 667).



By JOHN BREWER MOORE
Assistant Town Planner
Montclair, N. J.

WANTED: More Open Space In Growing Areas

The purpose of this paper is to plead for adoption of a green area concept developed along private or semi-private lines as an adjunct to our existing green area practice which is based entirely on a foundation of public ownership.

TWO characteristics of the nation's rapid metropolitan growth have raised alarms in the minds of many people. One of these is the immense and growing sprawl of urban uses that stretch for mile on mile without a sufficient amount of open green area to afford contrast and to preserve something of the previous rural character.

The second characteristic is the loss of valuable, and in many cases irreplaceable, agricultural land, as urban uses spread outward from burgeoning city areas. California and New Jersey are two states where the statement, "My land is becoming too valuable to farm," expresses the economic difficulty that farming interests face in fringe counties which are undergoing suburbanization.

These two problems suggest the need for a new concept of providing open spaces in our metropolitan areas. For, in the future, if the public demands both a better protection of agricultural lands and a check on endless urban sprawl, our present policies for obtaining and maintaining parks and other public green areas will be inadequate. Outright public acquisition of land cannot be expected to occur on a scale large enough to satisfactorily preserve agriculture, and it will not be effective in arresting the problem of urban sprawl. Nor can zoning be expected to achieve the required goals, because (a) we cannot deny agricultural interests relief in the face of our tremendous suburban development, (b) there exists little if any coordination between our taxing and zoning policies, and (c) the theory of green areas predicates a special public interest in certain tracts of land above and beyond the usual public interest in any tract of land under zoning restriction. Therefore a new green area concept is needed.

Land Acquisition

How would an additional open space program resemble our present practice, and in what ways would it differ?

It would resemble present practice by designating and setting aside lands to provide open space, but it would differ in the means of securing the open areas. Two methods would be used in obtaining the additional green areas. One method would involve the acquisition of property rights in designated areas. In contrast to existing park programs that acquire land in fee, this program would acquire only certain public rights and assign all remaining rights to the property owner. The rights acquired by the public authorities would permit the prohibition of structures, and commercial, industrial, and nuisance uses. Thus the public agencies directing the program would be assured that the designated land would remain open, while the owner would be permitted to use it for agriculture and uses lacking structures.

A new green area concept is needed if something of the rural character shown here is to be retained in growing suburban areas.

The second method of assuring the retention of green areas in growing areas would revolve about the medium of tax concessions. For land designated to remain open, a contract between the owner and the public authorities involved would be drawn that would include the following covenants: (a) the land under contract would remain green within determined standards for the duration of the contract period, (b) certain tax concessions would be granted the owner, and (c) the owner would agree to grant certain public rights to this land, such as hunting privileges, tempered, of course, by the regulations of such applicable agencies as state fish and game commissions. Such contracts might be developed on a term basis of five years, or they might be for longer periods and written to contain "relief and repayment clauses" for the land owner.

Uses of Open Spaces

The particular kinds of open spaces for which the program would be designed would include green belts to delimit the extent of urban development of existing communities and to delimit and define future residential areas. Broad green areas adjacent to future parkways in outlying suburban areas might also be established under the proposed open space program.

Consider, in addition to parkways and green belts, other desirable uses to which this program could be devoted. Three of these come to mind instantly: flood control, by devoting flood plain areas to open uses; water supply, by protecting water shed areas; and public aircraft insurance, by prohibiting areas close to airports from over development. Obviously, this list of potential uses can be supplemented.

The designation of the specific areas to be retained as open space would be the responsibility of county planning agencies acting in close collaboration with municipal planning boards. This would place the additional green areas program on an official basis within an echelon of local government capable of possessing regional views and executing regional actions.

Definitions would underlie the program. Agricultural interests would have to establish standards whereby "good farming land" could be legally identified. The rights of the public authorities and the rights of the land owners of the future "private or semiprivate green areas" would have to be carefully delineated. The use categories of the green areas would require both definition and differentiation. Similarly, the necessary contracts and their administrative execution would have to be spelled out, including terms of mandatory "permitted public uses."

Whether the state, counties, and municipalities purchase or condemn the necessary property rights, or whether counties and municipalities elect to grant certain tax concessions to obtain these rights, a green areas program of the nature outlined would be promoted best through the medium of state grants administered in cooperation with the counties affected or on a state-county, state-municipal basis. A grant program could vary according to the particular goals sought. It might be on a straight grant basis, for the creation of green areas next to parkways; on a matching grant basis for green belts, flood control measures, and water shed development; and on a fractional grant basis for airport protection.

Conclusions

The public is accustomed to and sanctions the expenditure of tax monies for several types of green areas: parks, playgrounds, recreational areas, forest reserves, game preserves, and hunting reservations. In response to this the planning fraternity has supplied itself with a pot of gay green paint that it daubs on plans and official maps to designate existing and potential areas which have been or are to be withdrawn from private use and the tax rolls. Our expanding population in this prosperous era, with ever-increasing amounts of leisure time and a steadily rising proportion of retired older people, has deluged government with demands for more parks and recreational space. At the same time, our population is fast becoming aware of the esthetic considerations in community building and rebuilding, the public's need for and appreciation of green areas becomes more apparent each year. I believe our population is able to understand and will advocate an advance in green area thinking when it considers what might be achieved.

EDITOR'S NOTE: This article is a condensation of a talk titled "Needed: A Second Shade of Green" which was delivered by Mr. Moore on November 18, 1955 at the annual convention of the New Jersey State League of Municipalities. A copy of the full text of this talk may be obtained by addressing the author, Town Planning Board, Municipal Building, Montclair, New Jersey, and enclosing four three cent postage stamps.

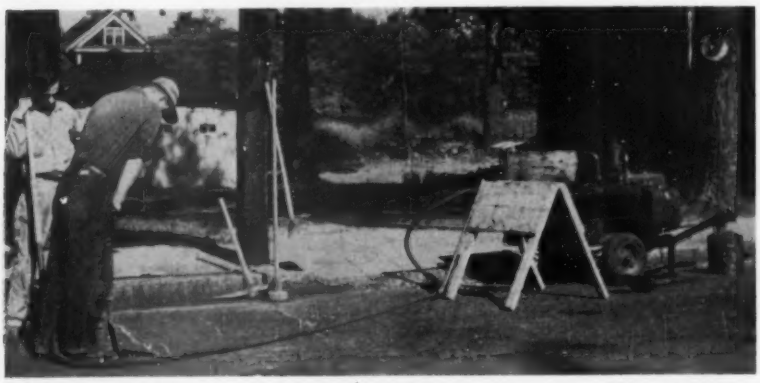
To make a service cut in concrete pavement, Birmingham, Mich., uses a Clipper concrete saw.

A Recipe for Trouble-Free Street Cuts

By LEO F. FLOTRON
Chief Engineer
Bureau of Highways
Dayton, Ohio

REMEMBER the gremlins, those little unpopular elfs of the Air Force who scurry around a plane and make things go wrong for no good and logical reason? The Air Force's trouble with them strikes a sympathetic chord in every city engineer's heart. At one time, you could have convinced any of us in Dayton that our gremlins numbered a regiment. Each apparently was assigned to a pavement cut that we had excavated, backfilled, and repaved. These gremlins were backfill settlement experts, causing endless embarrassment and humiliation when we had to return, refill the settled ditch, and repair the damaged pavement.

Today, we are developing procedures that will disband this group of gremlins. We have made a study of paving practices in a number of well run cities. If the best practice is followed, one will be able to backfill the trench and repave with absolute assurance that the ditch will not settle and the restored pavement will remain in tiptop shape.



On lighter, asphalt surfacing, Melrose, Mass., puts to work its pneumatic equipment to cut a street opening. This air hammer is powered by a Lindsay air compressor (right).

Backfilling is the most important feature of the work. Practices vary with the type of street where the excavation and backfill are to take place. Generally, they can be lumped into two categories: backfilling on residential streets; and backfilling on main thoroughfares or collector streets.

In both cases, sheeting is often required during excavation in order to support the sides. Most prefer to remove the sheeting as the backfill work proceeds. Occasionally, the ground is so unstable that the sheeting cannot be removed. In these cases, the sheeting may be cut to a depth of 2 feet below the surface of the pavement. If this causes the ground to slump away and undermine the pavement on each side of the ditch, the unsupported pavement must be broken away so that the entire exposed area can be backfilled.

Residential Street Backfill

In lightly traveled residential streets, one can backfill trenches safely with the excavated material, when the roadway lies on good sandy

or loamy soil. Fine-grained clay, subject to excessive swelling or shrinkage should be avoided as should a soil with an unstable, decomposable organic content, such as peat, rotting wood, or leaves. In no case should material containing frozen lumps of soil be used for backfill.

Good practice requires close attention to the backfill around the pipe or conduit. The fill should be placed in 4-inch layers, compacted thoroughly, preferably with pneumatic tampers until the fill reaches a level 6 inches above the top of the pipe. From here one can backfill uniformly in layers no greater than 5 feet, soaking each thoroughly with water jets at least 1¼ inches in diameter at a minimum of 40 pounds of pressure. This softens the soil, permits it to settle firmly and gives ample support to the residential traffic it must carry.

On heavily traveled streets, a bank-run gravel should be used rather than the excavated material. However, the excavated material can be placed around the conduit, tamping it firmly in place as is done on residential streets. From the point 6 inches above the top of the pipe to the surface, a strong, nonsettling gravel with a maximum size of 3 inches and containing not over 20% silt will eliminate trouble. The backfill will settle more firmly if the trench is filled to a point 12 inches below the finished pavement and flooded with water that flows slowly into the trench from high points. For best results, one should require enough hose to flood the trench at intervals of 100 feet.

Occasionally, open-cut excavation becomes impractical, and tunneling is required. Here again, best practice is to bed the pipe carefully by tamping soil around the pipe to a point 6 inches above its top. For the balance of the backfill, a number of cities mix a lean, dry concrete and tamp it into the remainder of the space, thus providing rigid support for the tunnel roof. The concrete is proportioned at the ratio of one part of cement to 12 parts of sand and gravel, or three sacks of cement per cubic yard.

Tunneling often is required; Salem, Ohio, uses McCarthy underground augers.

Pavement Restoration

Many resurfacing practices also vary with the type of street. This work can be lumped into five categories: unimproved streets; gravel streets; portland cement concrete streets; and concrete walks. The unimproved streets require only backfilling to the surface, then grading. Newly platted areas under development, with many service trenches, generally fall into this category.

To restore graveled streets and streets with bituminous surface treatment, best practice requires backfilling to a point 12 inches below the finished grade, and filling the remainder with two 5-inch courses of pit-run gravel of 2-inch maximum size. Each course must be rolled or packed before the trench is topped with road gravel, or with 2 inches of premixed bituminous material. The bituminous material should be finished to a level of ¼ inch above the existing roadway surface.

Asphaltic Concrete Restoration

To restore machine-laid asphaltic concrete, cities go to much more trouble. Regardless of the base course that supports the existing pavement, best practice requires a 9-inch layer of 2,500-pound concrete over the trench. One also should excavate beneath the existing base for a depth of 4 inches and extend the supporting slab of concrete to that width. The concrete must be thoroughly tamped into place and brought within 2 inches of the existing surface of the street. It then should be marked and grooved to form a better bond with the asphalt and allowed to set for three days. Asphaltic concrete then may be placed on the concrete to a point ¼ inch above the pavement that already exists.

On concrete pavements, present practice requires making the initial opening cut with a concrete saw, scoring the concrete about ¼ of its depth to permit pneumatic hammers to break the rest out to a true line. If a joint or the edge of the slab lies within 3 feet of the edge of the ditch, one must remove the concrete to the edge of the joint or slab. When replacing the concrete, all broken fragments must be removed and the exposed face of the concrete should be coated with a neat cement grout. The concrete used for replacement must have a minimum thickness of 8 inches, at least 2 inches thicker than the existing pavement. The edges of the pavement should be excavated for a distance of 4 inches so that the fresh concrete can be placed under the old. The concrete should be proportioned at a ratio of one part cement to five of sand and gravel, using air-entrained cement.

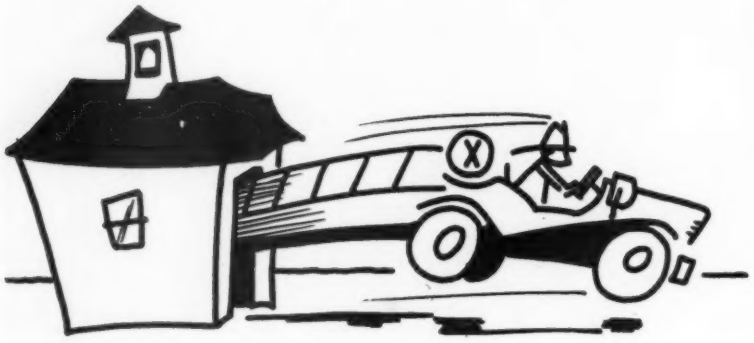
All trenched streets should be opened as soon as possible, recognizing the inconvenience and frequent expense to merchants that a closed street creates. Steel plates or wood planks placed over the fresh concrete enable traffic to use the street immediately.

Concrete Restoration

When restoring walks, a city is served best by replacing the entire width, cutting the concrete only at joints with a concrete saw. Here again, the concrete should be proportioned at a ratio of one part cement and five of aggregate, using air-entrained cement.

With these rather simple, straightforward procedures, any city should be able to eliminate all settlement in backfilled ditches and to force the backfill-settlement gremlins into other lines of work.

Mark of a Modern Fire Department -- Fast Arrival



By LEWIS A. MARSHALL
Chief of Fire Department
Providence, R. I.

ANY city in which fire station locations have not been surveyed in the last 30 years is probably inefficient in fire department operation. The groove is to think of efficiency in terms of better recruiting, officer selections, training, and drill. Actually, most of the fire departments in the country could increase their efficiency by a reorganization along the following lines:

1. The relocations of plant to eliminate units not required for adequate protection to the community.
2. The revision of the communication systems for operational control.
3. The effective utilization of man power in periods of emergency.

Elimination of Stations and Companies

Before we "relocated and eliminated," the Providence Department totaled 37 engine and ladder companies in 30 stations. We reduced this to 26 companies in 16 stations. Thus we eliminated 11 companies and 23 old fire houses. Excess units are a basic form of inefficient operation. In eliminating 8 companies we gained 84 men to distribute to other companies.

Station locations based on horse-drawn days are another basic form of inefficient operation. Applying National Board of Fire Underwriters distribution standards showed that two-thirds of the city's area was overlapped by two or more engine companies, and in the high value district by as much as eight. I believe we now have better protection with station sites based on what there is to burn. All new sites are on arteries where runs are more and the chance of accidents less.

The National Board of Fire Underwriters has estimated that the time element of response is satisfactory if company distribution complies with the following:

For engine companies. In the high value district ¾ of a mile; built up residential 1½ miles; 3 miles for scattered buildings.

For ladder companies. 1, 2 and 3 miles, respectively. This is the proper basis for the study of the fire service of any community, village or metropolis, including Boston and New York.

For cities over 200,000, population distribution must provide for ready concentration of companies for the large fire and that this concentration should not strip nearby areas of protection in case of a second fire. Approximately 16 pumping engines must be available within three miles of the congested district in cities of this size.

Our new station buildings are fire resistant and set back from traffic lanes. Apparatus floors are free from obstructions and provide ample room for reserve apparatus which is utilized by the off-duty men.

Revision of Communications

Eliminating 23 old buildings, retaining 7, and building 9 new ones gave us the opportunity to do many other things. These included an apparatus replacement program, merit system for appointments and promotions, creation of a 4th Battalion, and new response system. We set up a completely new communications system based on voice dispatching and radio. In setting up this new communication system we created a Division of Operational Control in charge of a Battalion Chief designated as Chief Dispatcher.

Any Department equipped with two-way radio knows that you get 50% to 60% more use of your companies. Inspection work plays a prominent part in fire department operations and with radio all companies on a prearranged schedule go on fire prevention inspections and respond to fires from the inspection site. In setting up this inspection procedure, I worked with the Retail Board of the Chamber of Commerce. Merchants who feared that the apparatus outside their place of business might scare customers away were won over by a large sign placed on the apparatus saying "Firemen inspecting buildings, respond to fire by radio." As a matter of fact the merchants feel that inspections kept their personnel on their toes.

Another important phase in radio is the speed of getting additional equipment, the interception of companies, particularly fill-in companies to save long runs, and to use companies returning from alarms. For example, two false alarms in the same area were received at 1:54 a.m. and 1:57 a.m. They were handled by the same companies by radio and resulted in the apprehension of a man in the neighborhood.

Beware Undermanned Companies

The undermanning of the individual company is more serious than a deficiency in the total manpower. There has been a marked increase in multiple alarms in many large cities. The loss figures show that many of these multiple alarms should not have been. The reason is that individual companies have been so undermanned that the chief officer sends in additional alarms, not for equipment but for manpower.

This general undermanning of fire departments has come about gradually. It has been due to granting additional time off. Sometimes only ¼ the men are on duty. Is that enough for that fire of unusual magnitude? It is wishful thinking that the large fire will not occur. It is this undermanning that is making it necessary to send in multiple alarms.

High Value Districts

In high value districts there must be sufficient fully manned companies to give adequate manpower to advance 2½-inch lines to upper floors. I would rather have two companies with five or six men aboard than four companies with two men aboard each piece.

It appears that approximately one out of 300 fires is a serious one and is usually the result of delayed discovery or a flash fire, and that 95% of all the fires are handled with one line or less.

Equipment and manning needs are measured by two factors:

The greatest demand for men and equipment that might be needed at any one time.

The minimum number of companies that must be distributed through the city in order to insure an adequate first alarm response.

In reducing the number of companies and retaining the equipment as reserves, we have the same amount of equipment and by utilizing the recall system we have a large reservoir of manpower.

A complete new response system, where up to and including a so-called third alarm there are still units left in each section of the city, is accomplished by bypassing certain intermediate companies. This we call the block plan. On first-alarm box assignments

A response system to alarms based on the block plan has been set up and has proved to be highly effective.

in perimeter and residential areas, responses were reduced from three engines to two engines, one ladder, one Battalion Chief. We increased from one company to two engines, one ladder, and a Battalion Chief as response to still alarms for building fires.

On second alarms the first company is the nearest company, then we reach out for the second and third due company. On the third alarm the same procedure is employed. With this plan you have no relocation of companies. Companies held in the fire house can run in either direction for more coverage. In the high value district one company is held in the house, up to and including a third alarm.

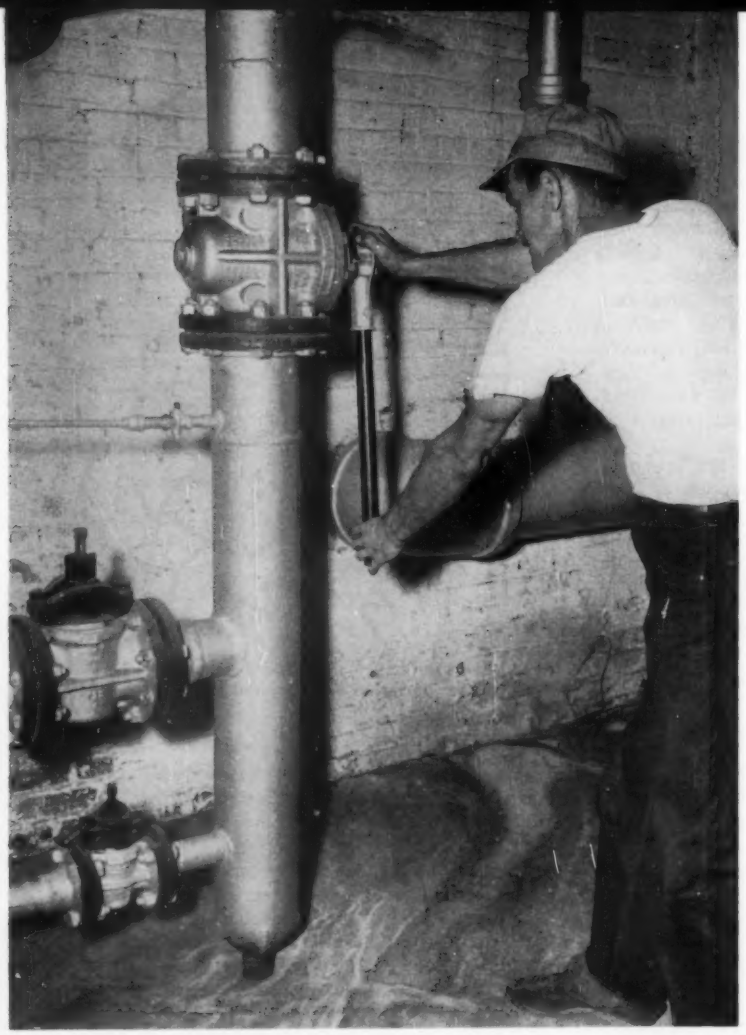
On the third alarm the off-duty men start returning to prearranged houses. We have 14 reserve engine companies completely equipped and ready to roll. A large map with red, green, and yellow lights shows units absent by lights out. Having this picture, on further alarms the dispatcher can select what companies and how many companies shall respond. In from 30 minutes to 1 hour we can have our 14 reserve pumpers and 5 reserve ladder trucks in service with off-duty personnel.

Multiple Alarm Operations

It is usual on multiple alarm operations to find as many ladder trucks as engine companies left in service. Therefore, when more men are needed for reserve engine apparatus it is usual to assign one man from a ladder truck to a reserve engine.

We created another district, thereby lessening coverage for each Battalion Chief so there is a white coat on every job. For a bond issue of $1,750,000 we were able to construct 9 new stations, retain 7 old stations, and abandon 23 existing stations.

A reorganization is not easy to accomplish. People involved almost always oppose it. We conceived our plan in 1943. We got going in 1947, finished in 1951. Then we had to sell the plan. After the National Board of Fire Underwriters approved it the local press wrote favorable editorials. All we accomplished was a modern fire department. How about yours?



Two-way, single-port, lubricated plug valves, 2 to 4 inches in size, are distributed through the system to act as block valves. A quarter-turn opens or closes the valves.

Those Little Plug Valves Make a Big Difference

Lincoln, Nebr., water and electric utilities find another aid to better plant operation

By F. L. BLUMER, *Superintendent*
City Water and Light Department
Lincoln, Nebr.

BECAUSE they give excellent closure, require little routine maintenance, and are quick and easy to operate, lubricated plug valves have solved some difficult valving problems at our power and water-filter plants. In the power plant, we use them on the natural gas fuel lines to the boilers; at the filter plant, we employ them as control valves on the filter valve control tables. Each application presents a different problem.

Valving a natural gas piping system is somewhat more critical than other applications, such as steam, water, or fuel oil. Here, tight, positive closure is both desirable and difficult. It is desirable, for both safety and economy, to prevent leakage of the light gas through the valve seat; difficult because of the lightness of the "fluid" handled.

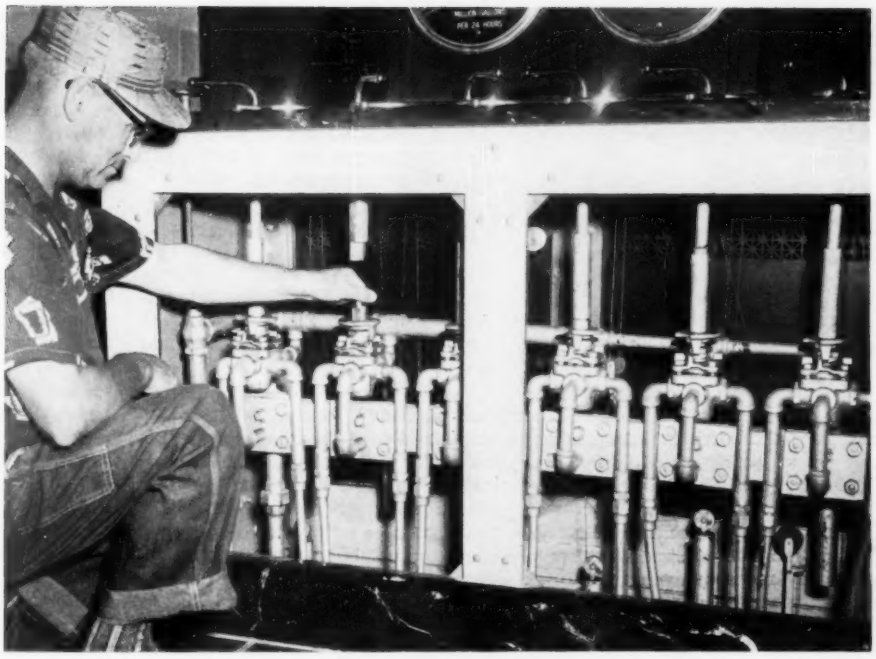
Equipment

The municipally-owned power plant is equipped with a Babcock and Wilcox boiler, operating at 260 psi and 530° F., and fired with gas, pulverized coal, or oil; and a battery of two 500-hp Murray Iron Works stoker-fired boilers, all operating at 260 psi and 500° F., fired with gas or oil. Although there is a choice of fuels, we use natural gas 90% of the time because of its favorable cost. The electric generators consist of 5,000-kva, 2,500-kva, and 3,400 kva units.

Gas from the transmission main is delivered to the power plant in a 6-inch line at an average rate of 1,500,000 cubic feet per day. Gas pressure is maintained by a 4-inch Rockwell semisteel gas regulator. Pressure is reduced from 200 psi to 60 psi and then to 15 psi at the burners. Two-way, single-port Rockwell-Nordstrom lubricated plug valves, ranging from 2 to 4 inches i size, are strategically distributed through the gas system, and act essentially as block valves.

Thirteen years of operating experience with lubricated plug valves on our gas-line system has indicated that this class of valve is eminently satisfactory. Operators like them because a quarter-turn fully opens or closes the valve. And although hand operated, the fact that they are lubricated permits simple operation. Equally important is the indication by plant operations that the valves maintain tight closure.

At the filtration plant, lubricated plug valves helped solve a difficult corrosion problem. Lincoln's 36-mgd water-treatment plant is located at Ashland, approximately halfway to



These ½-inch lubricated plug valves, installed on the filter-valve control tables, control the operation of the hydraulically actuated influent, effluent, and wash-water valves on the filter beds.

Omaha. The water is obtained from 25 wells in the Platte River Valley.

After aeration, the water is chlorinated to oxidize the iron and manganese. It then flows to a sedimentation reservoir that holds it for a two-hour detention period. From the detention reservoir, it flows to a bank of rapid sand filters where final removal of the iron and manganese is effected. While flowing from the rapid sand filters to the clear well, the water is post-treated with chlorine and ammonia to form chloramines. Low-lift pumps transfer the water from the clear well to a storage reservoir.

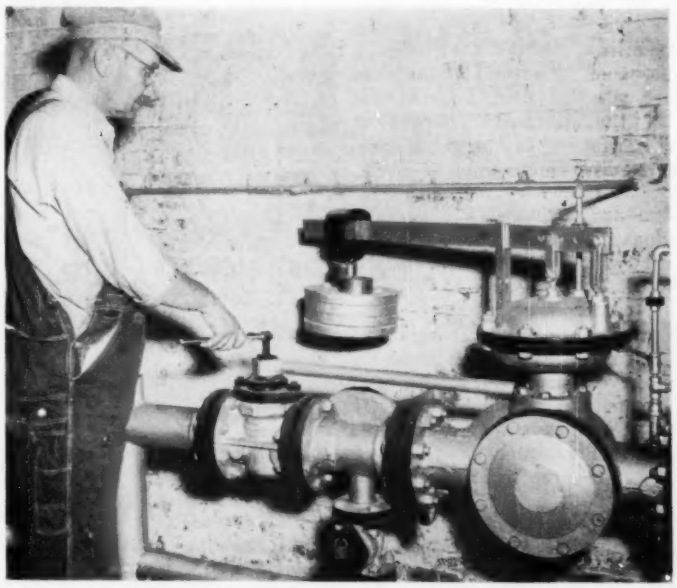
Control Valves

A crucial phase of the filter station's operations is control of the influent, effluent, and wash-water valves on the filter beds. These valves are 16 to 30 inches in size and are hydraulically operated. Operation of these main block valves are centralized at so-called filter valve control tables. When these control tables were first installed, control valves were of the piston type in which the closing edges lapped very little. The chlorine residual in the water affected the slightly lapped surfaces, and leakage soon developed. This permitted the hydraulically operated block valves on the sand filters to creep, which, of course, completely disturbed orderly operations of the water filter station.

About six years ago, these valves were replaced by lubricated plug valves, and the problem was completely solved. We have ½-inch, four-way, four-port valves on each control table. These six valves are also Rockwell-Nordstrom products. Each valve has a bronze stem extending through the table top. A glance at the position of the chromeplated hand lever on the extension immediately indicates the exact position of the plug valve and the hydraulically actuated block valve it controls.

In the six years the plug valves have been in use, there has been no leakage. The valves have stood up fine; control has been delicate and precise; closure is positive.

There are only three basic parts



Lincoln's plug valves required no maintenance other than simple and regular lubrication. The unit at right is a 4-inch Rockwell semisteel gas regulator.

comprising the plug-type lubricated valve: (1) body; (2) cover; (3) plug —the only movable member. Since the valve is opened and closed by rotation only and not by the raising and lowering of the movable valve member, vital seating surfaces are self-protected and self-cleansed. The valve does not contain enlarged pockets or recesses where sediment, scale, or other foreign deposits can interfere with valve action.

A lubricated ground-joint type of shoulder is used rather than conventional stuffing boxes which operate by gripping around a stem or rod. The shoulder joint is compact, produces a minimum of friction, and combines the functions of stem seal and thrust bearing.

The body of the lubricated plug valve is simple and compact. There are no high projecting yokes or bonnets, no threads exposed to corrosion, and no underhanging body to require room below the pipeline. In most cases, the space occupied by the lubricated plug valve is little more than the diameter of the pipeline flanges.

A useful characteristic of plug valves is the ease with which they are adopted for multiport construction. In the three-way form, a single L-shaped passage connects any of two ports; with a T-shaped opening any of three ports are connected; and the four-way type has two cutouts on opposite sides which connect any two adjacent parts of four ports with a quarter turn of the valve.

Lubrication and Maintenance

Pressure lubrication performs three important functions: (1) provides "jacking" action; (2) seals the valve; and (3) reduces friction and wear to a minimum.

Lubricant pressure exerts powerful "jacking" action against the smaller end of the valve plug, momentarily unseating it. This action overcomes any adhesion and, because of the taper, creates a small space for a confined lubricant film between the plug and body. As a result, regardless of how long a valve remains unopened, there is a positive means of unseating the valve without the need for hammer or wrench. Unseating occurs only at the time of lubrication, when lubrication pressure higher than the line pressure lifts the plug. The seat is flushed clean by application of fresh lubricant.

Because of the tapered-plug and lubricant-sealed design of these valves, they are not restricted to one-way flow, i.e., the valve can be installed in either direction because it holds pressure in either direction. Flow can be reversed at any time without danger of leakage or jamming.

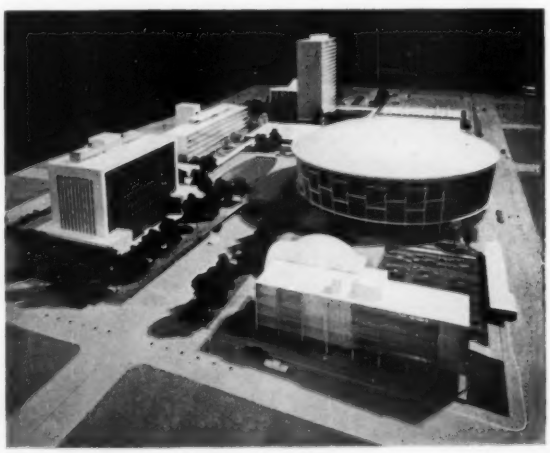
A common hazard to the life of valve seats is abrasion caused by solids in the line fluid. This condition is virtually eliminated in the lubricated plug valve if proper gland adjustment is maintained. Critical seat areas are fully lubricant sealed, and the lubricant is under pressure so that abrasive material cannot intrude. Any scoring material that may reach the plug is scraped off when the plug is turned back to open position.

Other than simple, quick lubrication on a regularly scheduled basis, the plug valves have required no maintenance. The valves on the filter-valve control tables are lubricated with a lube gun approximately four times a year. They function every third day. The valves on the natural gas system are lubricated on an average of six times a year by a simple twist of a cartridge nut in the valve system.

Tulsa's Civic Center

TULSA, often called the petroleum industry's capital city, plans to capitalize on this theme in its proposed $17,000,000 civic center.

To lay plans for the new civic center, Mayor L. C. Clark formed a Committee for the Civic Center composed of 19 civic and business leaders who, in turn, enlisted the aid of the Architects' League of Tulsa. Together they arranged their proposed civic center in close coordination with the city planning commission and arranged a cluster of buildings that reflect the culture and industry of this growing midwestern metropolis.



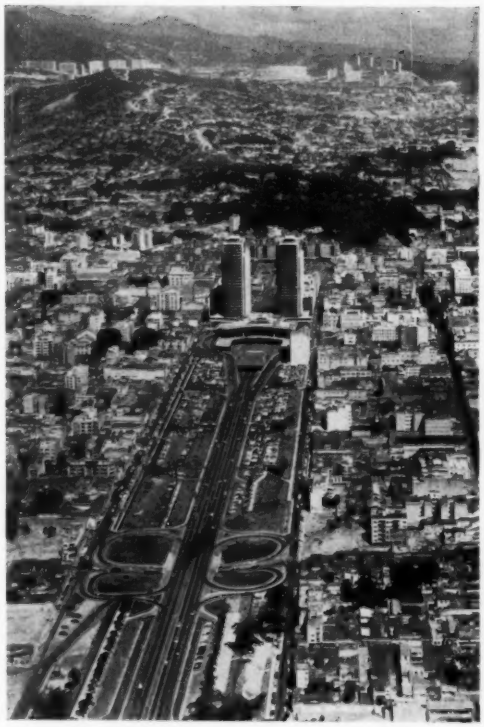
Tulsa's civic center will embody stimulating architectural design.

The center will combine city, county, state, and federal buildings within easy access of each other. It will have a large civic auditorium, a museum and also a theater. It will have a single entrance and exit.

Viewing the center from Denver Avenue, the first building to face the visitor will be the one housing the various state offices, on the right. Immediately behind this will be the open-air theater with a thin-shelled, curved concrete roof. On the left will be the county court house. Continuing back will be the city hall and police administration building. At the far end will be the federal office building. Toward the center at the right will be a cylindrical building containing the Gilcreas Museum of American History laying special emphasis on the part petroleum has played in the country's growth. This also will have an auditorium and other facilities for various conventions and civic functions.

The entire area, when constructed, will be maintained by Tulsa's Department of Streets and Public Property, currently headed by Commissioner S. W. Patterson.

Caracas Rebuilds for a New National Economy



Centro-Bolivar with its twin 27-story office buildings is shown at head of broad Avenida Bolivar in the heart of the Caracas business district.

THE wholesale redevelopment of Caracas, Venezuela is progressing rapidly as is evident in the photographs on this page. In response to the rapid economic development of this South American country, Caracas is taking vast strides in converting itself from the capital city of an agricultural nation to the urban center of a commercial economy. The prime movers behind the big changes are the hundreds of millions of dollars of annual revenues that come from oil production and the exploitation of fabulous iron ore deposits in this resource-rich country.

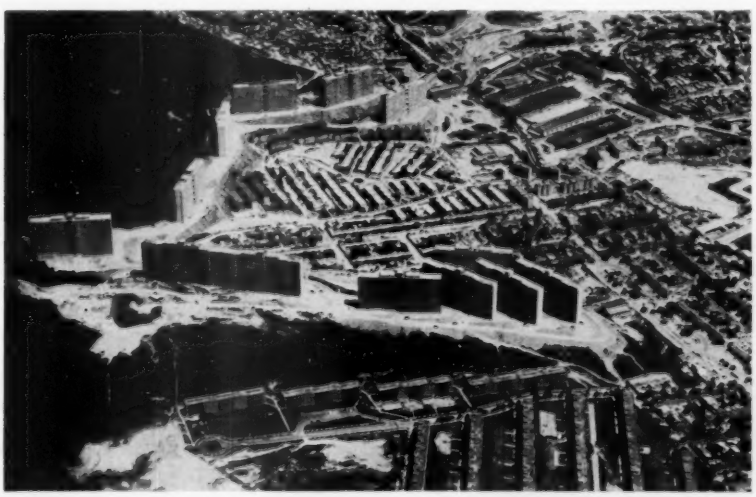
Redevelopment for Business

To meet space needs for the increasing numbers of businesses in Caracas, one of the largest redevelopment projects is "Centro-Bolivar"—a $300,000,000 development that includes twin 27-story office buildings, an underground bus terminal for 600 buses, and parking areas for 1,600 cars. The Rockefeller Center-style project sits astride the Avenida Bolivar, a broad super-highway that penetrates the heart of the Caracas business district. More than 500 buildings were demolished during the five years in which the Bolivar development was under construction.

With an average of 250 newcomers arriving in Caracas each day, Venezuela's capital city is one of the fastest growing in the world. Since 1950 the more than 400,000 new residents have swelled the city's population which now tops the 1,000,000 mark.

Redevelopment for Housing

To handle this amazing immigration, most of which comes from rural areas, and to erase the slums that were hand-me-downs from Venezuela's pre-boom period, vast new low-rent housing projects are being developed. Cerro Piloto, an almost gargantuan project designed to house 300,000 persons when completed, consists of a series of 15-story buildings located at the edge of the Caracas urban area. Former slum dwellers who move into the new project are permitted to turn in their old homes as a down payment on their new apartment. Their vacant shacks are then destroyed. Further monthly payments by the tenant are applied against the apartment's purchase price, and after 10 or 20 years, the tenant owns the apartment. Apartment prices range in dollars from $1,500 to $4,000, with monthly payments running from $6 to $10.



PHOTOS COURTESY OF HAILTON WRIGHT

Built in the heart of Caracas' slum section, the Cerro Piloto project has already eliminated much of the squalor-ridden area. A shack area which will eventually be torn down is behind the new buildings in the left center of the photograph.

EDITOR'S NOTE: Previous articles on Caracas appeared in THE AMERICAN CITY on page 99 of the June 1954 issue and on page 124 of the July 1952 issue.

New Milford, N. J., adds spore formers to overloaded digesters and gets temporary but effective relief

New homes have blossomed in New Milford, boosting its population nearly sevenfold.

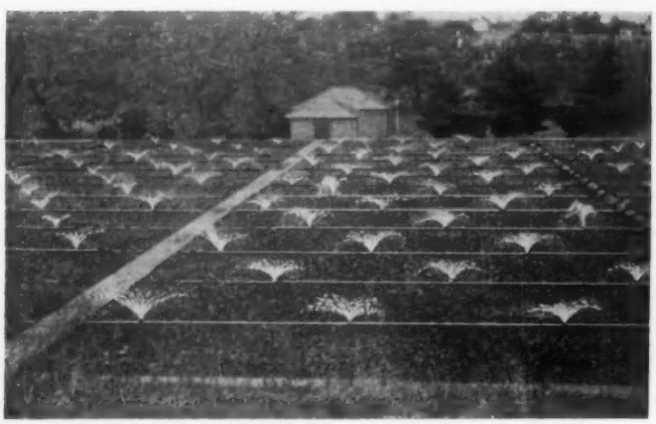
Digester Stretchers

THE northern New Jersey municipality of New Milford, has a sewage treatment problem that will inspire words of sympathy from any growing city. In 1937 the population of this little suburban community was no more than 2,500; and most agreed that its prospects of further growth seemed slight. So the city fathers built a new sewage treatment plant able to serve a total population of about 6,000. The plant provided a high degree of purification, using trickling filters with fixed nozzles.

However, during the postwar period, what happened in New Milford has been echoed in suburban areas across the nation. The little borough suddenly saw its population zoom to 17,000 and give every indication of continuing to climb.

The officials thereupon found themselves deluged with those typical responsibilities inherent in a fast-growing community. More streets, police and fire protection, schools, parking facilities, water, and finally at the bottom of the list, better sewage treatment.

The little plant, now struggling with a threefold overload, is the responsibility of James Entwistle, superintendent of public works. He found it not difficult to determine how trying the present conditions are. Foul-smelling, undigested sludge withdrawn to drying beds and a lagoon spread its offensive aroma over much of the residential area. The digesters have a capacity of 11,200 cubic feet in two tanks. Neither is heated; consequently they are less than one-seventh the size that they properly should be, based on the design factor of 5 cubic feet per capita served. The best that Mr. Entwistle could do was to hold the solids in the tanks for about 10 days instead of 60, normally required. As any sanitary engineer knows, and as Superintendent Entwistle is ready to confirm by experience, partially digested sludge has an odor that generates belligerent action by close neighbors.

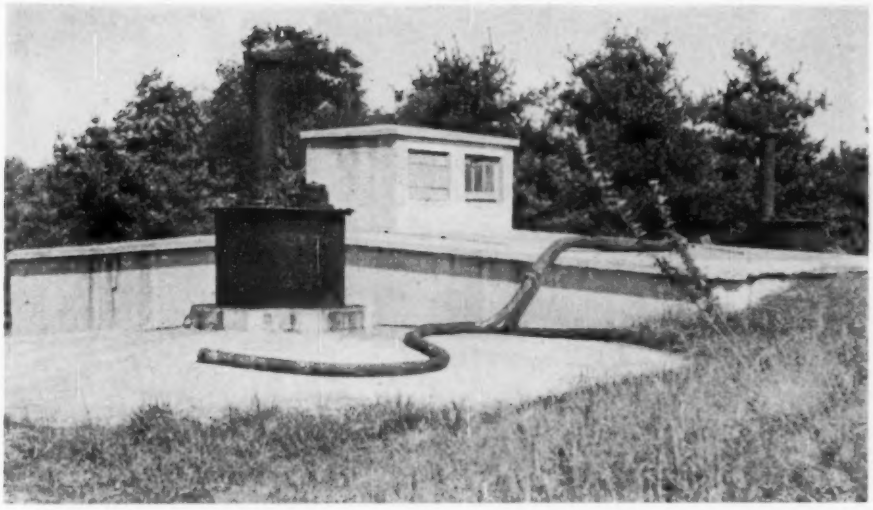


The original plant was designed to provide a high degree of purification, using fixed-nozzle trickling filters.

Enlargements Ruled Out

Enlarging the sewage plant would be too costly. Moreover, a bigger treatment plant did not seem the best answer for New Milford in any case. The borough is part of highly urbanized Bergen County, and the county has a sewer authority that is bringing service to the area on a regional basis. New Milford's mayor and council deemed it advisable to join this system as soon as it extended to their area. Present plans indicate that the county system will be available in about two years.

In the meantime Mr. Entwistle de-



The two digesters were badly overloaded. However, spore-forming organisms, added artificially, adequately compensated for their inadequate capacity.

cided to see whether digestion couldn't be hurried along with the help of certain organisms artificially introduced. The digesters do not provide the very best environment for anaerobic bacteria. The pH rarely rises above 5 and the temperature of the sludge in the digester during the winter and early spring remains uncomfortably low, rarely going higher than 60° F.

Spore-Formers Tested

His investigation brought him in contact with the FX-Lab Company of Newark, N. J., whose bacteriologists told him that they had a spore-forming organism that ought to live and multiply under these conditions. Furthermore, they told him that they were willing to let him try their material with the understanding that the borough would pay only when satisfied with the results.

To see whether this additive would work, Mr. Entwistle decided on a controlled test. Both digesters were drawn down to a 10-foot level, or half their total height, giving each 2,800 cubic feet of undigested sludge at the start of the test. He then added 25 gallons of the organisms to one tank and none to the other. Thereupon he added raw sludge at the rate of 280 cubic feet per day to each digester. This took place from June 1954 through October. During this period, the temperature in the digester never rose above 60° F. and the pH remained 5.4. The one application of spore-forming organisms, labeled by the company FX-21, was all that the digester received during this period.

The difference in performance of the two tanks was pronounced. During June through September, Mr. Entwistle found that he had to make no sludge withdrawals from the seeded tank, and only 7,760 cubic feet in October. From the unseeded tank he had to take an average of nearly 4,000 cubic feet each month for a total of 19,640 cubic feet during the entire period. This meant that the organisms accounted for a reduction of over 60% in sludge withdrawals. Liquefaction of the sludge solids increased proportionately, almost double in the tank with the FX-21 over the untreated tank.

With this much encouragement, Mr. Entwistle made a full-scale application to both tanks from November 1954 through April 1955. Here again he added 25 gallons to each digester, drawn down to half capacity as was the case with the original test. This time, during the winter period when digestion would proceed under difficulty, he had to remove only 10,600 cubic feet of sludge whereas 65,000 cubic feet had to be withdrawn during the same period the previous year. Thus the FX-21 had the effect of increasing the effectiveness of his digesters sixfold.

Neither Mr. Entwistle nor the bacteriologists feel that this type of treatment can be considered a permanent substitute for adequate plant capacity. However, he hopes to keep his overloaded plant under control and free from nuisance by periodic additions of these spore formers until the county's trunk system reaches the borough.

Spore formers have reduced the volume of sludge going to the drying beds.

Six Feet of Snow

The center body blade is the key to Kingston's snow removal work. The truck carries concrete blocks as ballast.

By ERNEST A. STEUDING
Superintendent of Public Works
Kingston, N. Y.

KINGSTON, a city lying within the New York state snow belt, must plan to deal with 50 to 75 inches of snow each winter. With a population of 28,000 persons using 125 miles of city streets, the Department of Public Works has to recognize snow plowing as a major assignment. The task becomes even more complicated by the steep hills on the eastern side of the city that slope down to the Hudson River.

Manpower and Equipment

To keep all the streets open, we require a crew of 63 persons and 50 pieces of snow-removal equipment. The plan of attack, painstakingly worked out and proved successful by numerous skirmishes and a few major battles, is based on thorough indoctrination of the crew and careful selection and preparation of our equipment.

Our crew is made up of men who have been with the department for many years and who are familiar with their responsibilities and equipment. Nevertheless, each October, we hold preparatory maneuvers to rehearse the men, assign routes for plowing, and familiarize our snow removal army with its objective. Check lists are then prepared and we await the first storms of November with confidence.

We use three types of vehicles for plowing. First is the conventional 3-ton dump truck, which does double duty during the highway construction season by hauling stone, fill, etc. For snowplowing purposes, we equip this unit with a front-mounted, two-way plow. Since it is held down only by its own weight, and rides on casters over the packed snow, the plow cannot clean down to the bare pavement. We, therefore, use these trucks primarily in lightly traveled residential areas. We use both Baker and Good Roads plows for this work.

Another type of vehicle used for snowplowing is a road grader equipped with a front plow and center moldboard blade. This machine can scrape down to the pavement because the weight of the vehicle is imposed on the center blade. However, because of its long wheelbase, it is cumbersome on short streets, and it is slow moving when compared to the trucks. Nevertheless, we are pleased with the job it does on long and comparatively straight runs. We own two of these units.

Heavy Plowing

Heavy plowing is usually performed by eight 16-ton (gross vehicle weight) Walter Snow Fighter trucks. These four-wheel positive drive units are all equipped with a hydraulically controlled center blade which carries approximately 50% of the weight of this vehicle. Consequently, they are able to clear packed snow and slush from the pavement. Furthermore, since the center blade and subframe are fully spring-mounted, the trucks can do their road scraping at fast speeds without endangering the chassis structure. The unit's spring mounting is so arranged that the center blade is free to follow the slant of the road surface independently of the angle of the truck frame. As a result, the truck can scrape the streets clean, right down to the pavement surface, in just one quick pass.

The positive drive on all four wheels gives the trucks great tractive power. This is important in center-blade work where the loading placed on the blade reduces the load-

ing on the driving wheels which means a reduction in the tractive ability of the truck. Every wheel must be driving at all times if the truck is to do a clean job of scraping, particularly on the steep grades typical of Kingston.

Although these big trucks are equipped to use front plows, we do not attach them unless the snowfall is unusually heavy. In most cases, the center blade is all that is needed. The blade is over 36 inches high, thus giving us the necessary capacity for clearing relatively deep, hard-packed snow.

Heavy traffic during the day usually compresses and packs the snow so hard that front-mounted plows would not be as effective as the scraping action of the center blade. Also, the big front plow makes the truck hard to maneuver on city streets.

Critical icy spots get prompt protection by truck mounted salt spreaders.

Removal Schedule

We do not attempt to clear heavily traveled streets during the day, and prefer doing this work after midnight. However, by that time, the day's traffic has packed the snow very hard and in varying depths. Nevertheless, the Walter trucks with center scrapers get right down to the street surface and shove the snow to the side so that traffic can resume normally in the early morning. We prefer to plow snow to the side rather than the center because center windrows must be hauled away immediately or the traffic will repack the snow sufficiently to require additional difficult scraping operations.

Best results can be expected from trained personnel and well-designed equipment with proper ballasting—an often overlooked principle. Too much ballast is as much a hindrance to effective use of equipment as is insufficient ballast. Wherever possible, we use molded concrete blocks as ballast. In our eight Snow Fighters, we use approximately 5 tons of ballast so that maximum stability and traction may be maintained.

Coordination Important

November 15 is set as the deadline when all equipment and personnel must be ready to assume assigned duties. Prior to this date we will have completed the following preparatory steps:

1. A complete mechanical check of all vehicles used in plowing and removal operations.

2. A check of additional equipment, such as tire chains, plow frames, front plows, and underbody blades.

3. A check of each unit to insure proper winterizing such as antifreeze, lubricants, heater and defrosting efficiency.

4. A check of high sideboards to be used in hauling trucks that cart snow away from the street.

5. A recheck of the department's telephone book to provide an up-to-date, easy-to-locate listing of all employees.

Plowing Routes

For efficient snow removal, we have divided the city into 12 plowing routes. This map is put on display in the department's office to familiarize personnel with the areas involved. As an additional aid to operators, a map of each plow route is prepared and attached to a clip board which is carried by the operator for quick reference. Furthermore, a call sheet is prepared which lists all operators, their telephone numbers, assigned routes, vehicles which each man will use, and a space for the names of assistants. Telephone clerks calling out the men need only refer to this list—an obvious time-saving device when assigning personnel during a storm.

In addition to regular plowing, we maintain sanding and salting crews which are dispatched when icy conditions are expected because of sleet storms and other types of ice-provoking weather. These men cover critical streets such as those near hospitals, steep hills, intersections, etc. At the department's garage is a bin which can hold over 500 cubic yards of dry sand which we get from the city's brick-yard area. We also maintain a stock of 30 to 50 tons of salt. Sanding and salting of streets during the winter months is almost a continuous operation. To do this work we use Tarco "Scotchman" truck-mounted spreaders.

The events of a typical day of snow removal procedure would be as follows: A weather report at 8 a.m. indicates that snow may be expected early in the afternoon. The quantity of sand in the bin is checked and the supply replenished if necessary. Our men are alerted at noon. Three hours later, a light snow begins to fall; the temperature holds at 22° F., but the barometer continues to fall.

Sanding and salting crews are dispatched to cover critical areas throughout the city. We get in touch with the U. S. Weather Bureau in Albany and learn that we can expect from 6 to 8 inches of snow during the next 10 hours. At this point, mechanics begin to install chains on all plow trucks and the desk clerk is alerted to notify the superintendent and/or the assistant superintendent when the depth of snow reaches 3 inches.

When the desk clerk phones the superintendent, at about 7 p.m., to notify him that the 3-inch fall had taken place, he receives instructions to put the snow-plowing plan into operation. The clerk immediately calls out mechanics and snow-plowing personnel. Meanwhile, the superin-

(Continued on page 125)

Work progresses on the 30-inch-diameter gravity supply line under the careful surveillance of satisfied observers: (left to right) Engineer H. F. Wiedeman, Armco representative Frank Rushton, Superintendent R. B. Simms, and Contractor E. A. Deconyck.

Water, "Key" to Progress

How a water works adjusted to the community's transition from an agricultural to an industrial center

By WILLIAM C. BOWEN
Water Works Engineer-Chemist
Spartanburg, S. C.

SPARTANBURG, S. C., is located just a few miles from the Blue Ridge Mountains in the heart of the textile South. Within 20 miles of the city are 44 textile manufacturing plants and other allied industries. It is the center of a vast peach and cattle raising agriculture. These industries demand an adequate water supply and, consequently, the Spartanburg Water Works serves a population of about 60,000.

Settlers founded Spartanburg in 1839 because of the "cool, clear spring and branch," on what is now called "The Square," in the heart of the main business district. In 1887, private interests built a water works just north of the town. A small dam across Chinquepin Creek stored raw water; a settling basin excavated in the ground and wooden tub filters with steam pump comprised the "works." A 216,000-gallon wrought-iron standpipe provided storage for the distribution system. Records show that about 50 fire hydrants were installed.

Municipal Water Works

In 1908, the city purchased the company for $230,000. In accordance with the enabling act of the legislature, a Public Works Commission of three members was elected for terms of six years to operate the water works. This elected Commission is still the governing body of the water system.

In 1920, Robert B. Simms came, as superintendent, to Spartanburg from the Atlanta Water Works. He remarked, at the time, that he thought he could catch up with the work in a few months and would be able to take things easy. However, in 35 years, he still hasn't caught up. The county was then just beginning to change from an agricultural economy based on cotton raising to an industrial economy based on cotton manufacturing. Some meters were in service, but most of the customers paid a flat rate. Mr. Simms' first move was to extend metering to all users.

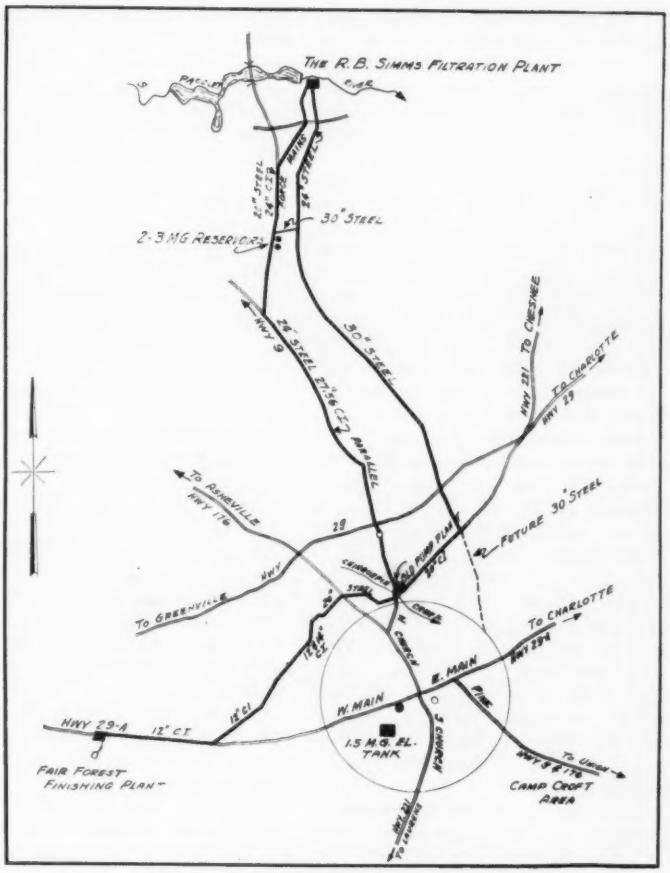
The expansion of the cotton industry after World War I created an influx of new plants and a rapid growth in population and water demand. Both the Commission and Mr.

Simms realized at that time that a new source was vitally important.

After a thorough study in 1926, the Commission built the present plant on South Pacolet River, 13 miles north of the city. A 360-foot Ambursen-type dam of reinforced-concrete construction was built across the river to create an impounding reservoir. Mixing and sedimentation basins and six 1-mgd filters were constructed. A pumping station, a 24-inch cast-iron force main laid to a 3,000,000-gallon reservoir, and a 27.56-inch (70 centimeters) cast-iron gravity supply main were built to connect with the distribution system at the old pump plant.

An unusual feature of this installation is the pair of 500-kw generators driven by the 55-foot average head created by the dam. Power from these generators is used for standby service. At times of high water, secondary power is sold to a power company which has a 33,000-volt transmission line running to the substation adjacent to the powerhouse. The hydroelectric station is now completely amortized and its capacity used to offset pumping costs when water will permit.

The force main to the reservoir site is about 3 miles long; the head on the pumps is about 270 feet static. From the reservoirs, the head is such that gravity flow occurs throughout the distribution system. All this construction was financed by a bond issue of $1,350,000 at 4.5% interest. Only a very small amount of this issue is still outstanding.



The designer's drawing of Spartanburg's new transmission line.

A Second Expansion

By 1938, a second expansion had to be undertaken. Taking advantage of a PWA grant, the water works issued bonds for $300,000 at a rate of 3% to match the PWA funds. The filter plant was increased to a capacity of 9 mgd, a new 3,500-gpm pump was added, and a new supply main laid to the city. This line used 20-inch Armco steel pipe force main laid parallel to the existing 24-inch cast iron and 24-inch Armco steel pipe gravity main laid across the road from the existing 27.56-inch line. Pipe lengths of 50 feet were specified and Dresser couplings used throughout. In 1948, a section of this pipe was removed near the reservoir to permit insertion of a tee. This section showed no signs of deterioration in either the lining or the pipe proper.

Meanwhile, through the years, the distribution system was strengthened, new mains were laid, and a 1,500,000-gallon elevated storage tank was erected in the center of the downtown business district. In 1941, Camp Croft was located about 4 miles southeast of the city. A 14-inch cast-iron main was laid between the elevated tank in the city and the camp site.

At the war's end, the camp was purchased by local interests and has been developed as an industrial residential section, with a portion set aside as a state park. It is along the 14-inch main, now owned by the water works, that the oil companies have built their bulk plants.

With the closing of the camp and curtailment of war production in the mills, a brief transition period occurred, followed by another surge of expansion and increased demand for water. To meet these needs, a 6,000-gpm horizontal centrifugal pump was installed and a second finished water reservoir of steel construction was erected beside the original concrete storage facility. A little later, a new settling basin, chlorine room adapted to the use of ton containers, and a flash mixer were built. The Commission then honored Mr. Simms' long record of service by naming the plant The R. B. Simms Filtration Plant.

Subsequently, two standby Layne vertical turbine pumps of 4,650-gpm capacity were placed in a new pumphouse built over the existing suction well. To eliminate the threat of flooding, the pumps were installed above the clearwell floor level. Steel header pipe connects the pumps with the two force mains. At the same time, the chemical storage warehouse was doubled in capacity.

New Filter Building

A new filter building was erected adjacent to the old one to house two sectional wash filters, each rated at 3 mgd and using Wheeler bottoms. One filter was put into immediate service to raise the plant's total nominal capacity to 12 mgd, while the other, which stands opposite its twin, was prepared for future loading. The effluent from this filter is piped into the existing clearwell to eliminate duplication of chemical feed machines.

(Continued on next page)

Total cost of the extensions and improvements from 1947 to 1954 has been approximately $800,000, excluding extensions to the distribution system. These costs were paid for from water revenues without a rate increase.

In 1952, it became apparent that an additional supply line from the plant to the distribution system would be needed in the near future. Summer peak loads exceeded the combined capacity of existing transmission mains. Difficulty was encountered in keeping the elevated tank at the proper drawdown level.

A study, made by Mr. Simms, the writer, and Wiedeman and Singleton, Atlanta consultants, indicated that a 24-inch-diameter force main from the plant to the reservoirs and a 30-inch-diameter gravity main from there to the city would be the proper design. Improvements would have to be financed by a bond issue and an increase in rates. Rates were raised 11% and a $1,000,000 bond issue was sold at an average rate of 2.35%, with provision for future issues. Bids were taken on March 25, 1954 and three months later the construction was complete, using Armco steel pipe for both the force and gravity supply mains.

Although the 30-inch line was surveyed to extend to the eastern side of the city, it has been stopped temporarily at the state highway. A 20-inch cast-iron pipe is being laid along that road to connect with the distribution system at the old pump plant. When it becomes necessary, the 30-inch line will be continued to East Main Street for a tie-in with the system. The new line was first laid out on air photographs to run about a mile east of the present transmission lines. It was then surveyed on the ground and located finally.

Pipe in 50-foot lengths and ¼-inch wall thickness was specified. Tee outlets were welded into the pipe and installed for each property owner. Tapped flanges on these outlets will permit service installations. It is anticipated that some use will be made of water for irrigation along the line.

A tunnel was driven—using Armco Tunnel Liner — beneath a heavily traveled federal highway so that the pipe could be laid without traffic interference. About 16,000 feet of 24-inch pipe and 35,000 feet of 30-inch pipe were laid.

Valves were placed at all road intersections for access ease. Air valves were installed on all peaks and a special Pelton air valve was placed on a high point not far from the plant to operate in conjunction with surge suppressors at the plant. Where the line crosses the bottom of Rainbow Lake, piles were driven to refusal and capped with concrete. The pipe was laid and anchored with additional concrete.

Park on Plant Grounds

One cannot think of the Spartanburg Water Works without mentioning Rainbow Lake. Shortly after the plant was built, the Commission began the development of a park and swimming pool on the plant grounds. A bathhouse and concession stand were erected, and two earth dams were built across either end of an old river bend. Picnic and kitchen pavilions and an assembly hall were then added.

Every year, thousands of people from the city and surrounding communities and even other states visit the lake. Civic organizations, churches, business groups, social organizations, and families use the facilities for their outings. Lifeguards and policemen patrol during the summer season. The 4-acre lake is supplied with filtered water from the clearwell by gravity flow. Additional chlorine is added for disinfection. The lake contains 12,000,000 gallons of water which drains back into the river channel below the plant.

Cedar Rapids, Iowa, Exports Good Sanitation

FOREIGN aid took an unusual turn recently in Cedar Rapids, Iowa, when City Health Officer Carl D. Smith showed 54 sales engineers from 34 overseas nations how his city is benefitting by a good sanitary fill program. The demonstration was part of a six-weeks conference held by Caterpillar Tractor Company.

Salesmen from 34 nations study Cedar Rapids' efficient yet cheap sanitation methods.

Acreage Purchased

Mr. Smith explained that Cedar Rapids recently purchased 100 acres of farm land for $100,000 to be used for park purposes. It then purchased 94 acres of adjoining unimproved land for only $20,000 to be devoted to the sanitary fill. The tract runs adjacent to the Cedar River and is heavily wooded. Eventually it will be used for park purposes also. The area will handle the city's refuse disposal requirements for the next 12 years.

By careful management, the city expects to regain the purchase price of this unimproved area. One man has agreed to pay the city $1,500 per year for salvage rights. Timber sold from the area already has brought an income of $1,000 and is expected to bring more in the future. Topsoil also is being sold from the area.

To use the area for a sanitary fill, the city first constructed a levee with an 80-foot base adjacent to the river to protect it against flood. A Caterpillar D7 tractor pulling a No. 60 scraper brings cover material from the bottom of the working face and a Caterpillar D6 with a T6 Traxcavator shovel spreads it over the compacted refuse. Settlement averages about 5%.

Air Makes St. Louis Buses Glisten

Good maintenance with air tools puts the 1,020 spic-and-span buses on schedule

Washed and vacuumed, these GMC diesel buses are ready for another day.

THE chief culprit in the decline in transit riding has been the family automobile. To win back lost passengers, many transit companies are engaging in promotion campaigns. The man or woman in the street or the car, knowing the costs of gasoline, parking, depreciation, and insurance, accepts that riding a bus, street car, or subway train is cheaper than driving the family car. What the public transportation industry is seeking to do is to convince the public that transit is quicker, more dependable, and more comfortable. To do this, the industry is offering cleaner, more attractive equipment, coupled with limited-stop, more frequent schedules.

The St. Louis Public Service Co. is a good example of what the industry as a whole is doing and can do to win back the lost passenger. The problem could be stated in two questions.

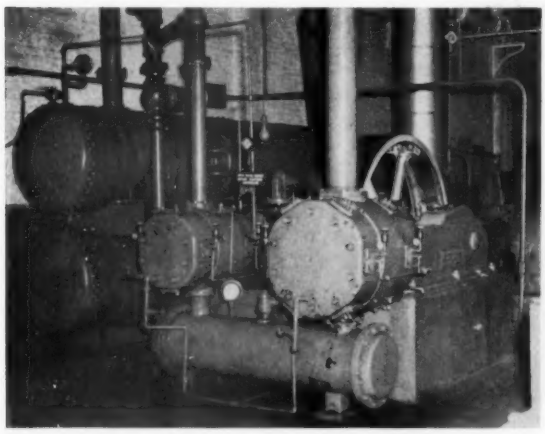
Twofold Problem

How can we win back the worker and shopper who were using the family car in preference to public transportation?

How can we reduce the traffic congestion caused by the family car in downtown St. Louis?

The job was to find constructive answers without forcing the city to spend large sums of money on throughway construction, widening streets, and constructing expansive off-street parking facilities.

St. Louis Public Service decided that good, basic transit service alone would not be enough. It must offer service that complements rather than replaces the family car. It must show the worker and shopper how it is smart to use the family car on some trips and smart to use public transit on other trips. Then it is up to the individual transit company to gear its service to eliminate as many of those trips as possible where the family car still has an advantage.



The two Ingersoll-Rand compressors that supply compressed air for the hoists and power tools in the St. Louis Public Service Company's general overhaul shop are shown above.

Park and Ride

St. Louis Public Service now operates 11 different express routes catering to rush-hour traffic, mid-day shoppers, baseball fans, and summer opera patrons. It also operates three "Park-Ride" routes, where the commuter parks his car free of charge at the outskirts of the city and takes a nonstop transit bus to his destination. Reduced fares are offered to shoppers. The company's regularly scheduled runs include 53 local routes.

The fleet of 40- and 50-passenger General Motors and Mack buses, almost all diesel-powered, is of impressive attractiveness. Each bus is painted inside and out once in three years. Each is washed and vacuumed at the end of each day's operation! Maintenance facilities consist of a centrally located general overhaul shop and five operating division garages, where some 200 employees work on a 24-hour schedule.

Defective equipment is sent to the general overhaul shop for major repair. All engines and differentials are removed and set to the general overhaul shop after every 180,000 miles of operation.

The Overhaul Shop

The general overhaul shop is divided into sections that include body repair and metal fabrication, engine rebuilding, machine shop, unit overhaul, electrical, welding and painting. Equipment supplied by Ingersoll-Rand Co., 11 Broadway, New York, N. Y., includes industrial air motor hoists of 1,000 to 6,000 pounds capacity, and heavy-duty wrenches, hammers, riveters, sanders, and drills. Compressed air for all tools and for general shop use is supplied at an outoff pressure of 100 pounds by two Ingersoll-Rand compressors.

City of Miami, Florida

DEPARTMENT OF PUBLICITY
NEWS BUREAU
320 N. E. FIFTH STREET

The City Tells Its Story

Municipal Public Relations

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

Cities Can Apply Miami Formula for 1956 Public Relations

Service Is the Success "Secret" In Miami's Prize-Winning Promotion

MIAMI is America's Big Thrill! And the Government Public Relations Association, which met in Miami in December, has found out how and why from the man whose city department helps make it that way—Woody Kepner, director of the Miami Publicity Department. MPD is the largest municipal promotion unit in the world and has just won the coveted Mid-West Travel Writer's award, second Grand Prize for travel promotion in competition with private and public travel promoters throughout the world!

Miami's publicity has been successful, Mr. Kepner told GPRA, because its basis is service and its promoters are professionals. The publicity unit serves tourists, trade associations, business and industrial interests, official municipal units, and representatives of all media—newspapers, magazines, TV and radio, and the major wire services. MPD does its work in cooperation with a half-dozen other promotional groups in the Greater Miami area, and its efforts and those of the neighboring Miami Beach Public Relations Department compliment . . . and do not duplicate, one another.

MPD Philosophy

The philosophy behind the publicity department's work, the service attitude that characterizes it, the routines followed in covering the "Miami beat" for all media, and the creative-type promotion of MPD are a pattern other cities might use in public relations activity for 1956.

Miami has enhanced its natural advantages — beaches, sunshine, and happy year-round temperature—with special sports events and pageants, first-class facilities for trade fairs and conventions, adequate visitor accommodations, and cultivation of friendly attitudes on the part of its permanent population. MPD has told the Miami story through its news bureau which services 179 U. S. and 205 Latin America newspapers, its photo section whose 25 traveling films are seen consistently by television and private audiences in major cities throughout the world, its convention bureau which last year handled more than 300 conventions, and its two auditorium management units responsible for everything from trade fairs to meals

Trade and business promotion by the Miami Publicity Department is directed not only to North America but, increasingly, to Latin America. This exhibit—in Spanish—is one MPD effort.

This montage of current promotional brochures is typical of colorful, hard-hitting publicity MPD develops.

PHOTOS FOR THIS ARTICLE COURTESY OF MIAMI MUNICIPAL DEPARTMENT, MIAMI, FLA.

furnished for about 5,000 banqueters!

Director Kepner says that his job is to do these things: create activities in keeping with and supplementary to Miami's natural advantages (and this means promoting sports events, music festivals, tournaments and fairs); attract tourists, new permanent business operations, and permanent residents; and spread the "Miami season" to include 365 days a year. MPD does these jobs with a professional staff of writers, photographers, and promoters. It has the full backing of the City of Miami and, this year, a $450,000 budget. The money, incidentally, is derived from a special tax millage, voted by the people of Miami.

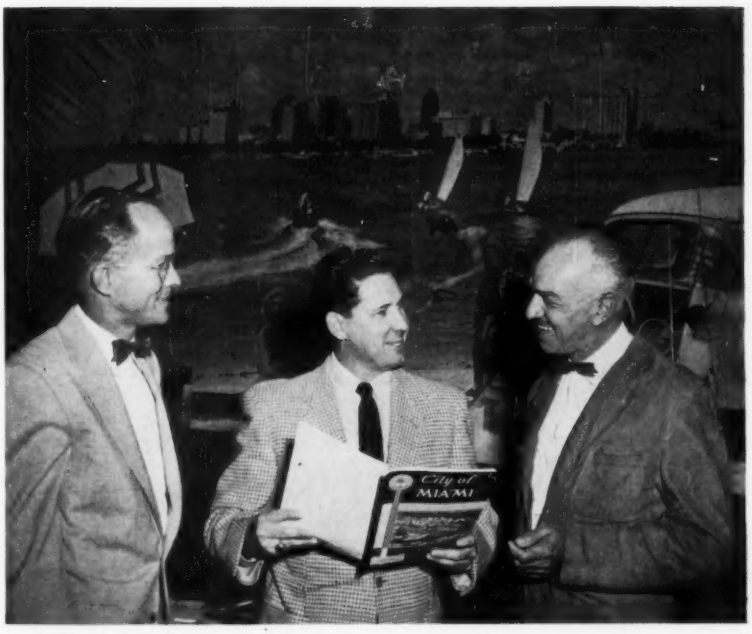
Typical of MPD's varied operation is the Orange Bowl Festival, in Miami (December 25 through January 3). Originally a football game, this year's 22nd annual event is a week-long "feast of funfare, fanfare, and fiesta" that includes the Shrine North-South All-Star Football Game, an International Junior Tennis Tournament, the Orange Bowl Regatta, a basketball tourney, "kickoff luncheon," Orange Bowl Parade, junior parade and grid classic, and the Grand Pageant to close the week. MPD does the advance planning for the festival, promotes it beforehand, covers it in story, photographs, TV news film while the festival is in progress, and will begin "advance" promotion on the 1956-57 event just as soon as the current one is completed.

Everyone's Friend

Miami's Publicity Department is a friend to all media. A visiting magazine writer finds desk, typewriter, and information ready for him in the MPD offices at the Miami Municipal Auditorium. Wire service representatives depend on MPD for news coverage and for pictures—the latter provided in negative form "because we've found they like negatives better than glossies." TV stations use Miami film because it is professionally done and has news and audience-interest values. The film, incidentally, is processed by MPD for $74 per minute (including sound, color, narrator, and music fees) which compares favorably to what Photo Editor Herb Davies says is commercial film cost of from $300 to $2,000 per minute. Newspaper editors and feature department editors get prompt responses to requests for photos and stories so that the News Bureau chief, Woody Thompson, says that most of his unit's releases are on a "request basis." This is good, of course, because request material is nearly always used. Convention planners are assured of coverage for their hometown newspapers, another service of the Miami Publicity Department. GPRA speakers, for example, who talked to the American Municipal Congress on how "MPR Paces City Progress," found their picture, and a story of what was said, in hometown newspapers the morning following the afternoon addresses.

Important to the success of MPD is the morale of the staff. Director Kepner says that when the department moved into its present air-conditioned quarters with plenty of space, good lighting, good equipment, handsome decorative scheme, and a palm patio just off the main room, morale "shot up 100%!" All the staff people are professionals with newspaper, magazine, wire service, or related backgrounds. Salaries are sound. The staff works theoretically on a schedule, but during special events it extends round the clock and "everybody pitches in." Mr. Kepner sets the pace for the group, and it's a fast one. "We're short only on time to develop and polish what we have in mind . . . but we're not short on ideas," he says.

Most cities do not have the needs nor the ambitions of Miami. But, nearly every city hopes for meetings, conventions, trade, and business development. And every town and city is a promoter of its strawberry festival, a holiday parade, or a special anniversary occasion. Miami has found that the effective way to handle successful promotion is (1) to set goals by deciding just what the city wants the event or promotion to accomplish; (2) get professional help (from a counseling firm, city staff, or interested individuals); and (3) recognize that the promotion will cost some money and that the city, officially, has a stake in the event and should, therefore, take some financial responsibility for it.



Miami Publicity Director Woody Kepner (center) talks over the 1956 promotional activities for the city of Miami with two top staff people, Woody Thompson (left) who is the News Bureau manager, and Herb Davies, photo editor.

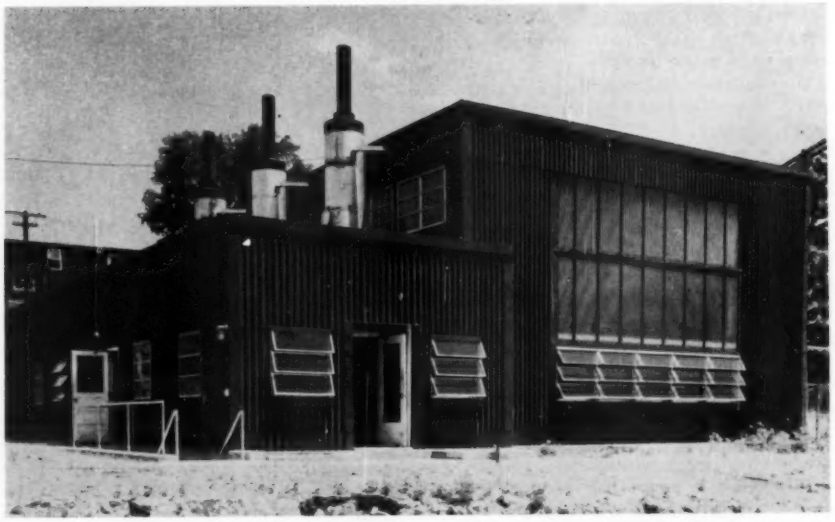
GPRA Award to New Orleans

THE City of New Orleans, Mayor DeLesseps Morrison, and the Public Relations Department received the annual award for municipal public relations, 1955, from the Government Public Relations Association in Miami, November 28. In government public relations, the top honors went to the Port of New York Authority and its Director of Public Relations, Mrs. Lee Jaffe.

Presentations were made before the American Municipal Association Congress by GPRA President Hayes A. Richardson, Kansas City, and were received by Winston Lill, acting director of public relations, City of New Orleans, and Matthias Lukens, assistant executive director, the Port of New York Authority.

Brackenridge's New Power Plant

Borough finds itself forced to end 38 years of dependence upon an outside source of electric power



A front view of the new municipal power plant at Brackenridge, Pa.

THE 6,500 people in Brackenridge, Pa., are discovering that a brand-new municipal electric plant isn't such a bad municipal investment after all. In the first 12 months of operation, the new plant generated a total of 5,656,800 kwhrs at a total production cost, including fuel oil, natural gas, lube oil, and station labor, of $48,407.74—an average of 8.55 mills per kwhr.

The borough has always maintained its own distribution system. However, it had not faced the necessity of building a municipal power plant until 1952 when the current private supplier of power served notice in 1952 that it could no longer continue operation and that its consumers would have to look elsewhere for service. Since alternate sources of purchased power appeared to be expensive and impractical, the citizens of Brackenridge decided to build their own plant and in mid-1952 voted a 20-year bond issue for that purpose. Three 960-hp Fairbanks-Morse opposed-piston dual-fuel engines were ordered and a new all-steel powerhouse was constructed on a hill overlooking the Allegheny River. In March 1954, the plant was completed and the three engines placed on the line. A month later dual-fuel operation was begun.

The first year's record of achievement satisfied everyone, including the skeptics, and did much to swell community pride in the new plant which had already become a showplace.

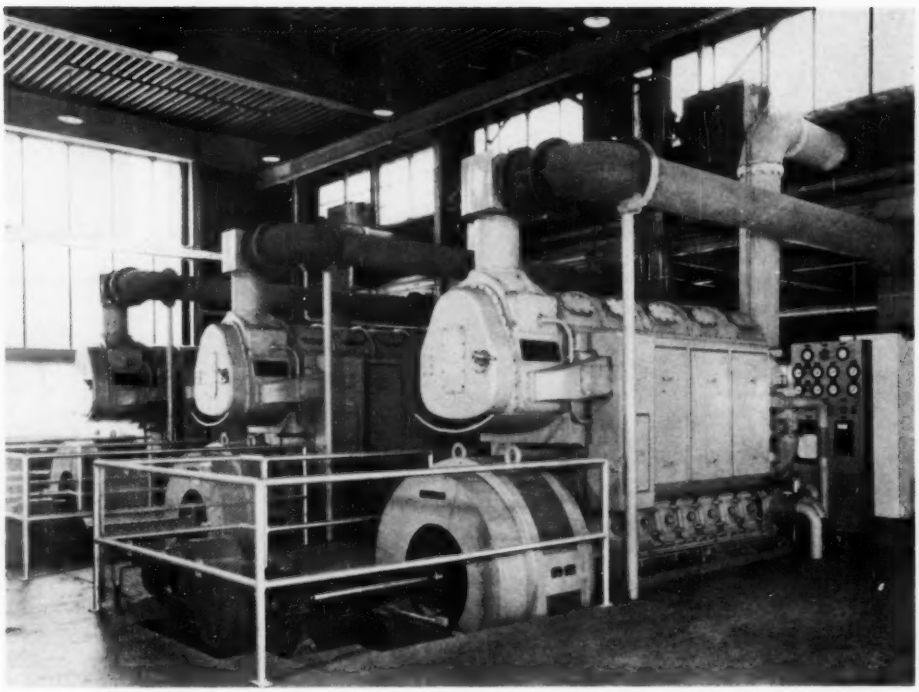
Among the obstacles that had to be hurdled before the plant's success could be achieved were the problems of fuel cost and the unavailability of experienced personnel in the community. Natural gas is delivered at Brackenridge at the high price of 42 cents per 1,000 cubic feet, including discount, which led some to fear that an investment in dual-fuel equipment might not be justified. At the same time, there was local resistance to the idea of bringing experienced diesel operators in from the outside, a solution which seemed necessary since no one could be found in Brackenridge who had such experience. Both problems were solved effectively without the need of compromise.

Operating Records

The plant's operating records for the 11-month period from May 1954 through March 1955 reveal how effectively the efficiency of the O-P engines compensated for the high fuel prices. In producing 5,241,600 kwhrs, they consumed a total of 53,006.1 mcf of gas at a cost of $22,262.53. At the same time, they consumed 53,052 gallons of pilot oil at a cost of $5,-927.08. This represents a total fuel cost for the plant of $28,189.61, or an average of 5.37 mills per kwhr.

The problem of providing qualified operators was solved with the help of the engine manufacturer. While construction was still going on, a Fairbanks-Morse engineer held "school" for five prospective operators, including a plumber's helper, a truck driver, a street department laborer, and two former linemen for the borough's water and light department. These men were instructed in the basic design of the opposed-piston engine. They were taught how to assemble and disassemble the various engine components, how to read temperatures and pressures, and how to operate and maintain the auxiliaries. The engineer even went so far as to tag every piece of equipment in the plant in order to minimize the possibility of a mistake during these first days.

The many automatic safeguards of the three opposed-piston engines simplified the instruction session. If the gas supply should fail, the engines immediately and automatically switch over to oil. If the pilot oil pressure should fail, the affected unit automatically shuts down, thus preventing gas from collecting in the system. The engines regularly carry a full load on gas. They can be switched back and forth between gas and diesel smoothly and without any sign of trouble. Although it is customary to cut the load on each en-



The plant contains the Young radiators, the Burgess-Manning exhaust snubbers and the Air-Maze air intake filters serving the three Fairbanks-Morse dual-fuel engines.

gine when switching from gas to diesel, the crew at Brackenridge often does not — again without trouble.

Design Features

Design plans for the plant called for a building large enough to house three dual-fuel engines of identical horsepower, with space for a fourth and larger engine to be installed when necessary. The engines selected are 6-cylinder units, each rated at 960 hp and at 720 rpm. Each is direct-connected to a 675-kw, three-phase, 60-cycle, 4,160-volt alternator, V-belted to a 7.5-kw, 1,750-rpm exciter.

The site chosen for the new plant was on a hilltop, about ¾ of a mile from the Allegheny River and well above record flood stage. Ground was broken on May 1, 1953, and the 66-foot by 55-foot steel building was constructed with a huge translucent plastic wall on the south side and with Miami-type windows throughout. A new substation was built against the east wall to replace the borough's old substation at the edge of the river near the water works. The department's existing distribution system, including 8 miles of energized line, was kept intact.

No. 2 diesel oil is delivered at the Brackenridge plant from the Gulf Oil Company by truck and is unloaded into two 10,000-gallon underground storage tanks. It flows by gravity through Briggs full-flow strainers to two 10-gpm, motor-driven transfer pumps and is sent through individual Buffalo meters to three 150-gallon overhead day tanks. These day tanks, located above each engine, are equipped with high- and low-level float controls.

From the day tanks, the fuel flows by gravity to each engine, being picked up by the engine-driven supply pumps and sent under pressure through Nugent duplex filters to the two injection pumps and nozzles at each cylinder. Drainage from the engines is collected in a standby sump and is returned to the storage tanks.

Natural gas arrives at the plant at a pressure of 6 pounds and is boosted to 36 pounds before reaching the engines. It passes first through two Chapman-Fulton regulators and three Rockwell meters, which are arranged in parallel. From the meters, the gas flows through a header to three Ro-Flo motor-driven compressors made by Allis-Chalmers. These compressors are cross-connected so that any engine can be served by any compressor or combination of compressors. In this way, a single compressor can be used to serve two engines up to 1,000 kw, thus saving the power costs of a 25-hp motor. To keep the gas at a constant temperature, each unit is equipped with a Yates radiator and air-to-gas heat exchanger.

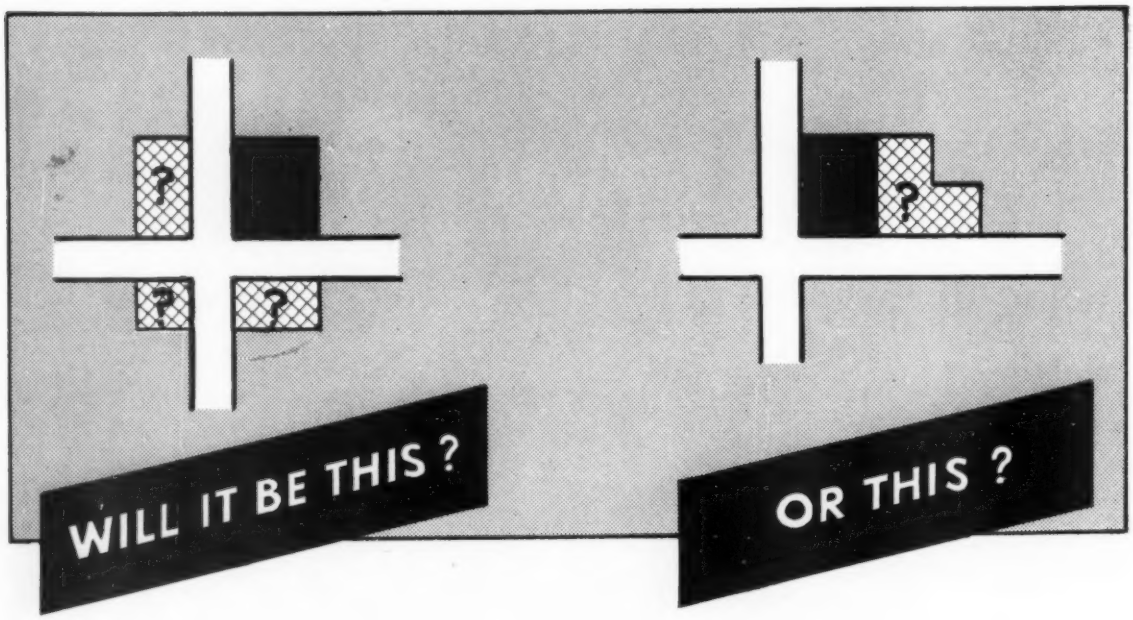
Lube Oil

A high-detergent-type lube oil, from the United Oil Company, is stored in two 350-gallon storage tanks located in the plant's basement. A 10-gpm, motor-driven F-M transfer pump sends it through a common header to all engines, where it is picked up by a built-in, engine-driven pump and distributed to all working surfaces and to the pistons for cooling. Still under pressure from this pump, the oil passes through a shell-and-tube-type cooler, through a duplex Air-Maze strainer and finally returns to the engine. A continuous bypass from the lube-oil system on each engine is circulated through a cellulose-cartridge type of filter for added protection.

Each Kewanee-Ross oil cooler is equipped with an automatic control valve, a product of American Motors Company, bypassing lube around the cooler as needed in order to keep it at the most efficient operating temperature. For starting operations, a 50-gpm prelubrication pump, driven by a 3-hp motor, is provided for each engine.

Make-up water for the jacket-water system of each engine is drawn from

(Continued on page 175)



The Question Is:

How to Expand Shopping Center Zones

By H. DALE BOSSERT, P. E.
Planning Director
Erie County, N. Y.

IF a one-corner shopping development proves inadequate to serve a growing neighborhood, and there is no room for expansion except on one or more other corners at the same intersection, should such additional corners be zoned for neighborhood business? Should such additional business zoning be approved only for the owner of the original development, or for his competitors on an equal basis? Or should the one-corner development be left to serve the needs of a part of the neighborhood, with additional business zoning to be approved somewhere else?

In slightly different circumstances, suppose there is room for expansion adjacent to the original corner, but the land is owned by somebody else who: (a) wants to have his land developed for business; (b) prefers to do it himself rather than sell to the owners of the original business district, and (c) is willing to coordinate his site and architectural plans with theirs. Let us repeat the assumption that a shopping enlargement is needed to serve the adjacent neighborhood. Now, should the additional area be zoned for business on the grounds that it is needed, or denied on the grounds that the existing development should not be subjected to such immediate competition?

Comparable questions may arise whether the shopping center is regional, community, or neighborhood in scope. The issues involve not only planning philosophy but also economics, politics, law, and perhaps ethics.

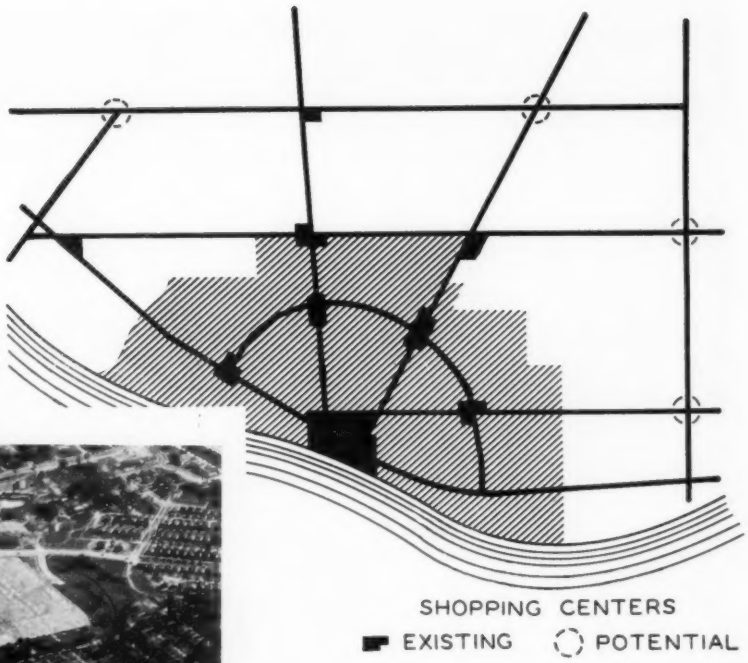
Approaching the Answers

From the planner's point of view, the proper approach in answering these questions is first to prepare comprehensive studies that will indicate (among other things) the approximate number and locations of future shopping centers necessary to serve the existing and future populations involved. These studies should be supplemented by investigations regarding the proper timing for the development of the centers in relation to future population growth. The studies may also determine what initial and ultimate site areas may be appropriate for multiple-stage store developments.

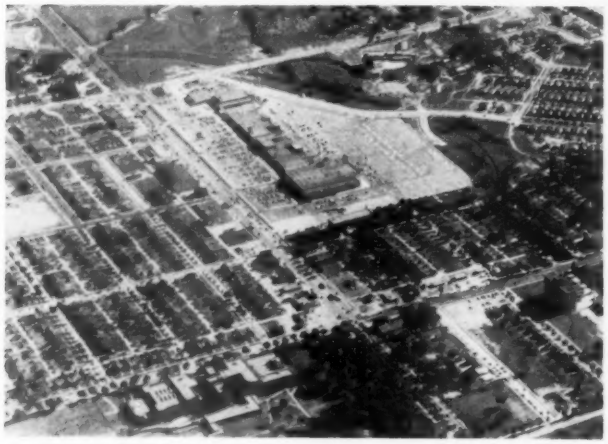
With these studies on hand it will then be possible for the planner to determine how much additional business zoning will be appropriate and justified at the specific intersection in question.

Four Corners or One Corner?

In considering the vital question of whether land on opposite corners should also be zoned to accommodate the additional business development, the planner relies on a recent change in zoning philosophy. In the early days of zoning, if one corner of a typical intersection were to be zoned for business, it was considered mandatory to zone all the other corners for at least as intensive a use. Today, because of changes in shopping and traffic patterns, it is realized



Right: A basic step in studying the possible expansion of shopping center zones is to prepare regional studies that indicate the number and locations of future centers necessary to serve the existing and future population.



Left: The "one corner" Southgate Shopping Center, which is located in Milwaukee, Wis., can serve the public much more effectively than could a four corner arrangement.

that a good shopping district may be built on one corner only—and that such a development can serve the public more conveniently and safely than either a four-corner arrangement or a "shoestring" zone.

The shift from four-corner to one-corner thinking has left a sometimes touchy question of "which corner?" Also, it has intensified the need for good subdivision design, careful building orientation and, sometimes, screen planting to avoid depreciating the residential value of the other corners. However, it is widely accepted as proper practice in zoning at the present time.

In approaching the question of whether the expanded business zone should be approved only for the owner of the original development or for possible competitors, the planner's primary consideration should be to assure that the additional zoning will not subject either the existing businesses or the community's tax base to the hazards of overdevelopment. However, it should not be the planner's function to direct that the additional business area be developed by the original investor in order to forestall possible competition. Such action would be a questionable use of public powers.

To the developer, protection of his investment is naturally a prime objective. If he wants to reap the full benefit of his enterprise, he should own or control not only all the land needed for ultimate shopping center development in this location but also all adjacent land which might logically be promoted as alternative sites for shopping center expansion. By putting such land into residential use he can provide himself with prospective customers while insulating his shopping center from immediate competition.

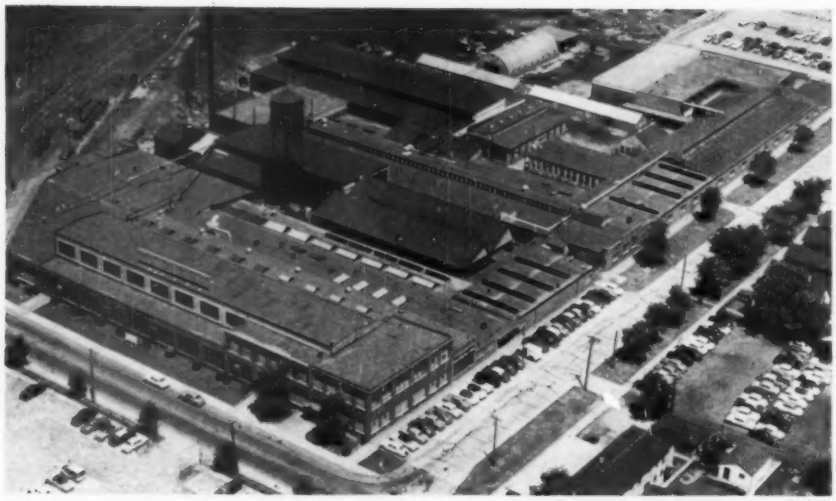
Thus, if good comprehensive plans are prepared and officially supported, and if the "rules of the game" are sufficiently spelled out so that a developer can know in advance both the minimum and maximum size shopping center likely to be approved in the location in which he is interested, the zoning problems in regard to future expansion of shopping centers should be reduced if not eliminated.

County Likes Photocopying

WE ELIMINATED the need for extra help and night work when we installed a Dexigraph camera. The cost of books for binding records has been reduced 50%, since a smaller book can be used for a photographic record than for a typed one.

Photocopies eliminated transcription errors and quicker service can be given taxpayers. For instance, a decree of more than 300 pages in length had to be copied. Under the old system the office would have been bottlenecked for months. The job was finished in one day with the Remington Rand Dexigraph.

LUNA J. ENYEART
County Clerk & Recorder
Summit County, Breckenridge, Colo.



Industry may be more than a physical neighbor in your town. Its executives and workers are often civic leaders. The Rockwell Manufacturing Company, whose East Chicago, Ill., plant (left), encourages its employees to take part in local affairs.

The Corporate Citizen In Community Affairs

Here is an example of how the manufacturing company in your town can participate in recreational, redevelopment, educational, and other municipal activities

A NEW type of citizen has emerged as a major factor in public affairs — the manufacturing corporation. It is a citizen without a vote, but nonetheless one with definite responsibilities to the communities in which it operates.

The trend among manufacturing companies and other business organizations is toward more active participation in community affairs. For the company, a good community is a sound investment. For city officials, an interested company is a powerful and willing partner who can contribute to the carrying out of civic programs. Business and industry participation can be enlisted in a broad range of public service programs. By knowing areas of common aims, city officials will better know how to achieve them.

Typical of progressive companies with a policy of becoming part of the community is Rockwell Manufacturing Company, of Pittsburgh. Operating 15 plants in 10 states, Rockwell is often called "the biggest small business in America." A credo made known to civic leaders and the general public is stated this way by W. F. Rockwell, Jr., president: "In each community in which we operate we are proud to be known and accepted as a local industry."

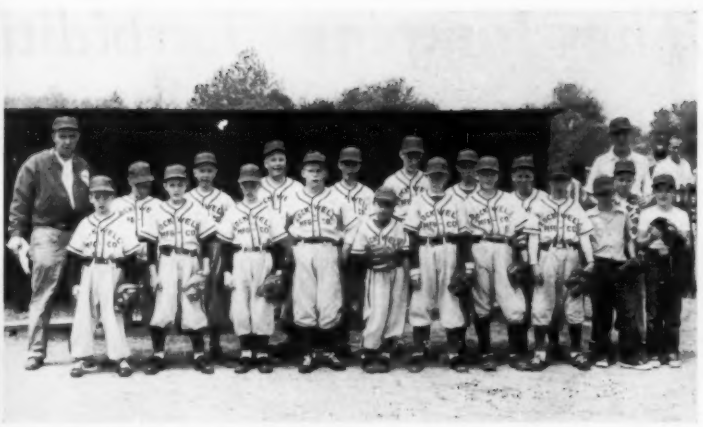
Participation Can't Be Passive

Being a good neighbor isn't just another "extra-curricular activity" with Rockwell. Active, wholehearted participation in community life is considered basic enough to be made a part of company policy. The company believes a well-organized and solidly-backed community relations effort—imbued with a genuine appreciation of the business and social responsibilities of industry in the community in which it operates—benefits everyone. That's why a sincere effort is made to show the community as a whole that it wants to be a good neighbor.

Community relations, from a company viewpoint, consists essentially of the knowledge and confidence that local people have in a local business enterprise. A good community relations program means more than occasionally contributing a company check to a worthy cause or picking up the check for a civic luncheon. Responsibilities can't be discharged that easily. To Rockwell, good community relations means contributing time and effort, providing leadership and know-how.

Rockwell plant managers and their staffs work with service clubs, local chambers of commerce, youth organizations, and worthwhile charities. They cooperate with police and fire chiefs in such projects as safety campaigns. By participation in Business-Industry-Education Days, school board service, recreation program backing, the company has earned the valued title of "good neighbor."

Equally important, Rockwell has achieved this goal while avoiding the labels of paternalism and self-interest. A summary of how Rockwell does it and the areas in which it



(Left) At a local home show young hobbyists receive company pointers on building a soap box racer with Delta power tools. (Right) The Rockwell junior team from Hopewell, N. J., winners of several champions were undefeated in the 1954 season.

operates can serve as a guide for city officials working with local companies.

In East Chicago, Edward Valves, Inc., a Rockwell subsidiary, joined with other local companies in mobilizing civic groups from industry, city officials, and Purdue University in helping build a more wholesome environment for the people whose future is linked with industry's. A long-range program, the Purdue-Calumet Development Plan, aims at checking civic blight by initiating and programming needed redevelopment in the community.

For industry, a wholesome environment for living in the community will produce and attract more responsible citizens as well as a more stable and productive work force.

Business Know-How Available

Spearheading educational programs should be a natural function for industry. Rockwell was the first business organization in Allegheny County (Pittsburgh) to be selected to present at schools a planned system of providing business and economic information for high school students. As a result, the local Tri-State Industrial Association formed a corps of speakers who are now appearing regularly in high schools and colleges locally, with a half-dozen Rockwell employees actively engaged in the program.

Company-sponsored groups can also be employed effectively by the community. In Uniontown, Pa., where Rockwell manufactures water meters, community and company officials organized concerts in the local high school auditorium — with the company supplying the entertainment. This takes the form of one of the nation's leading industrial singing and variety groups, known as the Rockwell Chorus. It has appeared at benefit shows throughout Pennsylvania and neighboring states, entertaining at hospitals, fund-raising events, and community functions. This year marks its ninth season of operation.

Industry's support of local recreation programs has always been strong, and is destined to become even stronger if present trends continue. The national program of Little League and Babe Ruth League baseball teams receives strong support in several Rockwell plant cities. The local program in Hopewell, N. J., for example, consists of 16 teams, sponsored by business organizations which supply equipment, bleachers, lighting equipment, and enthusiastic attendance at games. (Rockwell employees are justifiably proud of its team, which has won several championships and was undefeated in 1954!)

Companies frequently encourage educational achievements in fields in which the company operates. One such example is the annual Awards Day program in public schools. In Tupelo, Miss., where Rockwell manufactures Delta power tools, the company presents an engraved trophy and a Delta scroll saw to the student cited for outstanding workmanship and effort in the school's woodworking class.

One unusual use of company products took place recently at Hopewell, N. J. Sixty-four local residents set up a production line on a dozen Delta woodworking machines in the Rockwell plant, and for nine weeks on Saturdays and weekday evenings turned out articles ranging from lawn furniture to household gadgets for auction to support civic enterprises.

This is the same community that saw Rockwell people leading a drive to provide the city with new firefighting apparatus, which put over the Hopewell school lunch program, and which was cited for its outstanding record in the state in the employment of disabled veterans. Staff members were primarily responsible for raising over $19,500 in cash, material and labor to erect a house and store for a polio victim and his family of four, with name employees turning over their entire pay checks as contributions.

Such company spirit is infectious. Rockwell's Pittsburgh employees celebrate Christmas with their fellow workers by contributing gifts to children's homes, orphanages, and hospitals instead of exchanging them among themselves. One year approximately 600 gifts were contributed for this purpose.

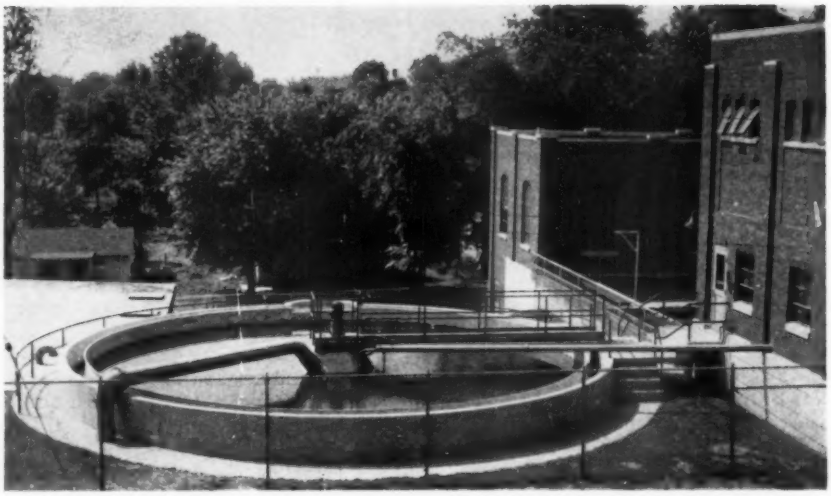
It's Rewarding Work

In the eyes of any community, a company is only as adequate a community asset as the people believe it is. Building acceptance is not a haphazard assignment. In a matter such as community relations which transcends day-to-day business issues, Rockwell has built a solid reputation. W. F. Rockwell, Jr. sums up the importance of the company's program this way:

Such a community relations program sounds like a lot of work—but it is rewarding work. A manufacturing plant on good terms with its employees and its neighbors is usually an efficient plant. Over and above that, there are very worthwhile human dividends in knowing that your neighbors are glad you're among them.

The Jumping Turbidities Don't Worry Us Any More

New water plant uses suspended sludge-blanket type of treatment to absorb varying turbidity and pollution characteristics of water from a "flashy" river



This new upflow clarifier is the heart of the present Mount Carmel plant.

By ELMO CONRADY*
Superintendent of Water and Sewage
Mount Carmel, Ill.

UNTIL recently, our biggest problem was "Old Man River"—the muddy Wabash, source of the city's raw water supply. Its turbidity can range from a low of 150 ppm to a high of 1,500 in three hours should the weatherman send a thunderstorm our way to spoil a sunshiny day. Turbidity averages 150 ppm, but averages don't mean much when they are based on extremes like these.

Industrial Waste

The next biggest problem has been industrial waste in the raw water. Mount Carmel sits in an oil-field area, and the Wabash suffers from sewage and oil-industry wastes from Terre Haute, Vincennes, and other river-edge cities. In our old plant, the raw-water was pumped into two large settling basins. With the long retention period of these basins, the settled wastes became odorous and phenols had an ample opportunity to make their trouble.

The third problem was the need for additional water of good quality. Our city has a population of about 10,000. It is located in southern Illinois in an area of expanding industry. To meet the rising demand for water, we have had to double our plant capacity.

With the assistance of our consulting engineers, Warren and Van Praag, of Decatur, Ill., we have been able to solve all three of these problems. We now have a plant that turns out consistently sparkling water not troubled by tastes or odors, regardless of the muddiness of the Wabash or the troublesome industrial wastes that it still has to carry.

The new improvements represent a $650,000 investment by the people. Probably the most important single unit in the redesigned plant is the upflow Permutit Precipitator. It has the responsibility of receiving this water with its jumping turbidity counts and removing the solids so that water with no more than 2 to 5 ppm of turbidity will go to the filters. Incidentally, we use the same size crew to operate this plant despite the doubled capacity that is now available to Mount Carmel.

The decision to use the upflow type of equipment resulted from a careful study of all equipment available and an appraisal of its value to our particular conditions. We liked its ability to remove turbidity in about half the time of the more conventional settling basins. It may possibly be that we were somewhat soured on gravity settling. Mud often remained in the old settling tanks as long as 60 days before we could empty them. The new unit automatically flushes the removed solids to the river, saving manpower heretofore required for this cleanup and eliminating much of the phenol and oil-waste odor. Moreover, it has demonstrated its ability to deliver a consistent type of water to the filters.

New Plant

The city built the present plant in 1933, replacing a 40-year-old water-supply works. The new project gave the city a plant with a capacity of 1½ mgd (million gallons daily), and a well-engineered distribution system featuring a 250,000-gallon elevated tank. However, in 1949, the system

* Superintendent Elmo Conrady recently received an award, naming him the best operator of a water treatment plant in Illinois. The award was made by the State Department of Health.

began showing signs of being too small. As a consequence, the council called on the consulting engineer to design needed improvements.

The first construction recommended was a new river intake. The new structure is of the "wet-and-dry well" type, using two 16-inch lines that run 80 feet out into the river. These carry water to the structure itself with the flow controlled by three 20-inch sluice gates. The water then travels into a wet-well pit, passing through a Link-Belt rotating screen that removes trash in the water. The intake has two Fairbanks-Morse trash pumps, to handle the material removed, and room for a third. From the intake structure, the water travels some 2,000 feet through a cast-iron pipe to the filter plant.

The author gives one of his five new operating tables a test run.

No Softening

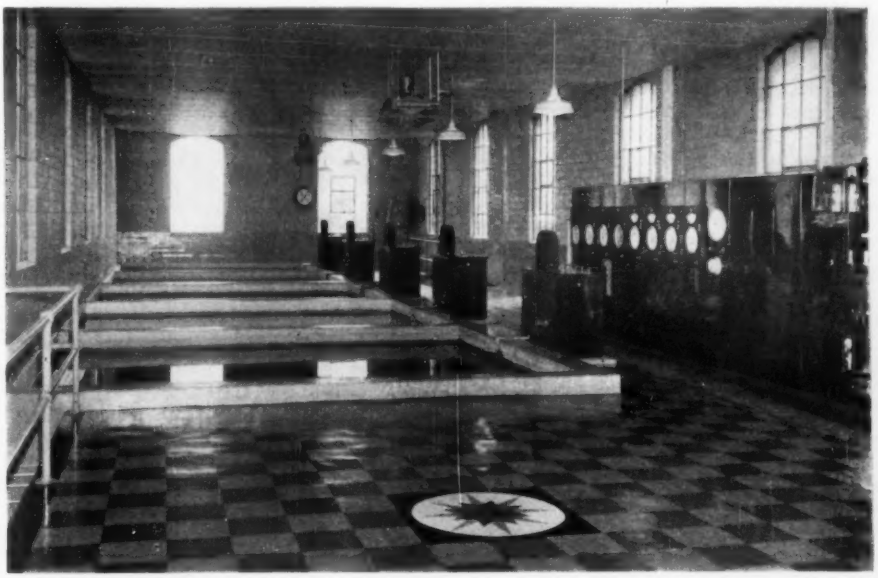
We use lime and alum for water treatment, applied by Omega dry feeders and making no effort at this time to remove the hardness. The hardness runs somewhat over 100 ppm, a figure that would be very favorable in many cities. We are convinced that the upflow clarifier makes thorough use of the chemicals and probably will show that our chemical requirements will drop. However, the plant has not been operating long enough to confirm this point.

We still use the old settling basins, primarily to provide added storage. They also give us the further advantage of added settling should it be needed in the future.

The plant has five new filters that augment the three old units. All five are each rated at 500,000 gallons daily. The new units have been supplied with Monocrete underdrains whereas the old filter underdrains are cast iron. All use sand and gravel for filter media. We installed new Permutit operating tables for all five filters, equipping them with Simplex controls so that they can operate automatically or manually.

From the filters, the water proceeds to a 500,000-gallon clearwell equipped with a level controller that governs the rate of flow through the filters. As the water level rises, the rate of flow through the filters decreases. As it goes to the overflow mark, the filters shut down completely as do the chemical feed machines and the pumps at the river. We can switch from automatic to manual control in five minutes.

The plant uses Wallace & Tiernan chlorinators and also can employ chlorine dioxide to eliminate phenols



The plant's spic-and-span appearance and eye-catching floor design reflect the good work of the operating crew.

The intake has to receive water with turbidity occasionally as high as 1,500 ppm.

from the filtered water. To deliver the water to the distribution system, the plant uses three high-lift pumps. Two are 50-hp and 75-hp DeLavals, and one is a 150-hp Fairbanks-Morse. Together they can pump nearly 3 mgd.

We also have a standby electric generator to protect against outside power failure. This unit is run by a 180-hp Sterling gasoline engine. For further protection we have another gasoline engine of 170-hp, directly connected to a DeLaval 1,800-gpm pump. The distribution system has been strengthened by construction of a second 250,000-gallon Chicago Bridge and Iron elevated storage tank.

Finishing Touches

With the new plant completed, our crew painted the concrete floor of the filter room in rather eye-catching grey and green squares, and followed a similar pattern throughout the building and even into the pipe gallery. The pipes have all been painted aluminum. Rubber mats are laid before the operating tables and control panels with signs instructing the operators to "stay on mats."

With this system, our city is ready for continuing healthy growth, with the confidence that the troublesome waters of the Wabash can be transformed into sparkling clear water for our homes and industry.

City Nursery Helps Naples, Fla., Beautification Program

THE progressive little resort city of Naples, far south on the west coast of Florida, has gone all out in a beautification program that enhances the charm of this frost-free, subtropical locality. Its 25 miles of paved streets are being lined with palms and native mahogany trees, while the famous Tamiami Trail, leading trunk route through southwest Florida, is being converted into an avenue of stately royal palms extending to the city limits.

Years ago the city fathers of Naples, sparked by horticulturally minded City Manager Fred M. Lowdermilk, established a nursery wholly owned by the city in order to supply more economically the city with top quality palms and shrubs. Miami and Tampa have municipal nurseries, but Naples (population 1,500) is believed to be the only small city in the state to support one.

To encourage property owners to beautify their own grounds with tropical plants, Naples for many years has given homeowners plants grown in the city nursery. So rapid became the growth of the city, however, that this policy was given up in 1952. The attractiveness of the public streets sets an example to the homeowner, and Naples is noted for the beauty of its spacious lawns and landscaping on private estates. Strict zoning ordinances add to the preservation of beauty and give protection to the Naples home owner.

The savings to the city by maintaining its own nursery are substantial. It is estimated that the city saves from $3,000 to $5,000 annually by growing its own plants. As small palms cost on the average from $5 to $10 apiece, and even relatively small cities require several thousand, this may be readily understood.

Number of Plantings

So far, Naples has set out 5,400 palms and trees on its public streets, all of them grown in the city nursery. In addition to these, a large number of plantings have been made in city parks, school grounds, and beaches. (Naples has a splendid 7-mile beach at its front door.) Some of these plantings are quite rare and can only be grown in frost-free climate such as Naples enjoys. These include coffee trees, African tulips, several types of calabash, poincianas, sausage trees, and many varieties of tropical palms. It has been the aim of the city to use flowering trees as much as possible, including trees which flower at different seasons, so that there is usually brilliant color to be seen.

Cities located farther north cannot give their people the exotic flowers of the tropics, but they can beautify their municipalities with plants and trees adapted to their climate, and very likely gain much by maintaining their own nurseries.

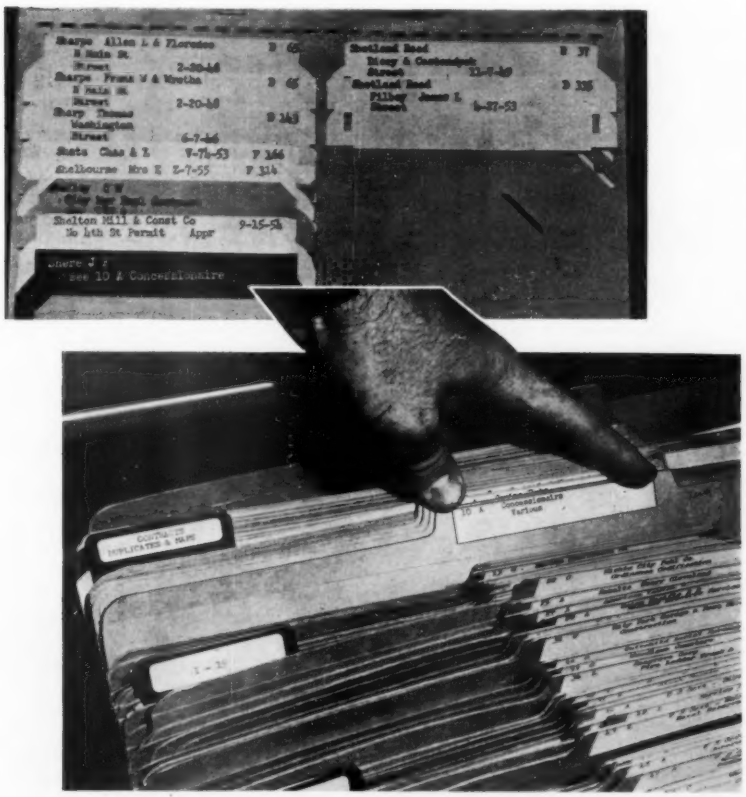
Naples' City Manager Fred M. Lowdermilk inspects a rare grapevine from Indo China, which is pointed out to him by City Horticulturist Otto Hemler in the city nursery.

Where's that document?

By SHIRLEY BALLINGER
City Clerk
Las Vegas, Nev.

A WOMAN came into the City Clerk's office here in Las Vegas, Nev., to see some deeds pertaining to Charleston Boulevard. A year ago we'd have located them—maybe after a half day's search through the files. These we found in two minutes by checking the 16-drawer Kardex file, our Master Index, which monitors every file folder and document in the office. In the drawer notated "C" to "Cho" were 52 visible pockets. The one labeled "ch" was flipped, revealing a number of color-keyed Chaindex references in the 8-by-6-inch pocket. Several were notated "Charleston Blvd." but one was buff-colored. In our Master locator, buff indicates a Deed.

The buff-colored "Charleston Blvd." Chaindex card carried a secondary reference—"D-28." To my deputy this meant that the needed documents (right of way easements for streets, sewers and power lines; Quit Claim deeds, Bargain and Sale Deeds) would be found in file folder 28 in our Deed cabinet which is legal size.



Locating legal papers is now accurate and easy. If looking for "Shere, J F," the Master Index indicates that complete material can be found under "10 A Concessionaire." Here in the files is the "10 A Concessionaire, Various."

With this information, she moved to the Deed file, pulled the drawer, found folder #28 and the Charleston Blvd. deeds in chronological order, the most recent to the folder's front.

In essence, that's our new system for quick, accurate location of legal papers. Before, we had no Master Index. Documents simply were filed alphabetically in 28 drawers. Misfiling was frequent. "Finding time" was tediously long and involved.

We'd outgrown the alphabetical system. It had been good enough back in the '40s, when Las Vegas' population was 8,000. With our population sextupled to 48,000, we needed something better. Besides, the City Clerk's paperload has increased even faster than the population.

We needed a better system, and we got it, after more than six weeks of on-the-spot study by experts from Remington Rand's Business Services Department. The changeover—and our new efficiency—has the blessings of A. H. Kennedy, Las Vegas' city manager, the City Council and Mayor C. D. Baker.

We began with what we had—seven four-drawer, legal-size filing cabinets. Added was the Master Index and its Chaindex system. Added, too, was the color-coded Variadex system, segregating file folders to their respective drawers, a hedge against misfiling.

Let's File a Deed

A deed comes in, is accepted (or denied) by the Board of Commissioners and is noted in the Minute Book. The resolution of acceptance is attached and the deed goes to the Recorder. Before it's filed with the

(Continued on page 173)

Law Enforcement as a Profession

By STEPHEN P. KENNEDY
Police Commissioner
New York, N. Y.

AS law enforcement moves forward in its ever-ascending climb toward professional status, I have often thought of the relatively short time available to any of us to leave our imprint on it. And yet, it is the sacred trust of those of us who are now engaged in police work to move ever onward towards its realization.

The need for professionalization must be recognized on two levels: within the police profession and outside it. The public as well as the police officer must appreciate our aims and support our efforts before we can be successful.

Law enforcement needs the professional policeman because the society in which we live today has become more complex. So have the laws governing it. The police officer must know human relations, civics, and the philosophy of government.

The public has not yet recognized the professional status of police work. The public attitude is, of course, reflected in the uniformly low pay which police officers receive

Police salaries are notoriously low.

throughout the country — indeed throughout the world. The public will accord a professional status to police work only when police performance indicates that such status is merited. What we are immediately concerned with then is the improvement of police educational programs; the lifting of our standards for admission to police work.

Law enforcement is one of the youngest professions. Other professions, such as medicine, law, engineering, and teaching, have comparatively lengthy historical backgrounds whereas law enforcement in the United States can point to an existence of little more than 100 years.

The progress achieved during that short period has been won by overcoming seemingly impossible problems. This was the pattern that all the other professions have had to follow. In its early years, medicine was not embraced wholeheartedly by the people. It was a long, uphill battle before the doctor was held in high esteem.

New York's first police force was established in 1844; Chicago set up a police unit in 1851; Cincinnati and New Orleans followed in 1852; and Philadelphia and Boston organized their first police in 1854. Today there are 40,000 separate police forces in the United States employing 200,000 men and women at a cost of a billion dollars a year. There are also 20 or more federal law-enforcement bodies, 48 state police units, as well as police forces of some description in 3,000 counties, and the municipalities.

While the idea of a police force, which is universally accepted today, is little more than a century old; the idea of professionalizing police service has been broached for only a few decades.

To win public confidence we must:

1. Keep politics out of Police Departments and keep the police out of politics. Show no favoritism—make advancements on merit only.
2. Be professionally objective—be impervious to mass hysteria—be equally vigilant to protect the rights of the innocent as well as to apprehend the evil-doer.
3. Cooperate fully with all law enforcement agencies on a high professional level.
4. Fight crime internally as well as externally by unremitting warfare against all types of graft and corruption. We cannot allow the actions of a few crooks in uniform to disgrace the entire profession.
5. Pay our police an adequate wage — commensurate with the hazards—moral and physical—and the high professional standards required to attract and retain the best police personnel.

Selection and Training

Recruiting patrolmen in New York City is the responsibility of the city's Department of Personnel, which established the requirements and conducts examinations for all the competitive positions in the city's civil service system. Up to the present time, the Department of Personnel has not established any minimum educational standards for admission to the Police Department. However, it is indirectly achieving a similar result through the content of its examinations. More and more, exams are being designed along the lines of general intelligence and aptitude tests which require an ability to reason logically and to interpret written material. To some extent, they also determine whether the candidate has the stability and attitude which make for a successful police career.

The time has long since passed in New York City when the appearance of one's name on a civil service list for patrolman was equivalent to appointment. There are three hurdles which must be cleared: character investigation, successful completion of the Police Academy courses, and a closely supervised probationary period of field training.

Once the city's Civil Service Com-

mission establishes a list of successful candidates for the rank of patrolman, superior officers of the Police Academy begin an exhaustive investigation of each candidate before his appointment to the department. The average investigation takes from six weeks to two months.

When a candidate is accepted, he commences the course of training at the Police Academy. In 1955, the length of the course was increased from three months to four months. Even though we train as many as 1,600 recruits at a time, our classes are kept small, and individual attention is given to each man through examination and interview.

Knowing that the men in the Academy are, as a result of the stringent character investigation, the type of men we want, we give them every opportunity to become proficient in the three phases of training — academic, physical, and firearms. If a man does not measure up to our expectations, he is either held in the Academy or is required to return during his probationary field training in order to receive individualized instructions. To give ourselves every opportunity to take a "good, long look" at the recruits, the over-all probationary period was increased this year from six months to nine months. Inability to reach our established standards results in the man's being dropped at the end of his probationary period. The old slogan of "Every entrant a graduate" no longer applies. Our rejection rate for all causes, including character investigation, runs about 35%.

Police candidates are closely scrutinized.

Recently, our department embarked on a most significant educational partnership. The Police Academy became affiliated with the Baruch School of Business and Public Administration of the College of the City of New York in the conduct of recruit education and in-service training courses. Sixty of our officers—all with academic degrees—were appointed to the college faculty as instructors. They are now conducting regular, full-semester courses in police science, including police organization, administration and supervision leading to the degree of Associate in Applied Science.

New York City has taken advantage of the opportunity of sending selected officers to specialized courses offered in various sections of the United States. We have sent men to Northwestern University, to the Southern Police Institute at Louisville, and to the Federal Bureau of Investigation's National Academy in Washington. At this point I would express to Mr. Hoover, whose foresight established the National Academy and whose genius has guided its successful operation over the years, the appreciation of those of us who are striving for acceptance as a profession. Our debt of gratitude to him is exceedingly great.

The New York Board of Estimate, which is the appropriating body of our city, has just authorized the expenditure of $4,458,000 for the construction of a new Police Academy building. This, to my way of thinking, is municipal confidence in our progressive educational program.

A formal, intense, and rigorous curriculum produces well-qualified personnel able to discharge duties proficiently.

It may well be that eventually training for promotion in the police department will enable us to develop a corps of truly professional policemen. We already have a code of ethics and a working theory of police science, which are some of the marks of the profession. Our system of "up through the ranks" keeps our force "democratic" and supplies a strong incentive for study and excellent performance.

EDITOR'S NOTE: This article is composed of remarks made by Commissioner Kennedy at the 62nd Annual Conference of the International Association of Chiefs of Police, held at Philadelphia, Pa., on October 4, 1955.

Six Feet of Snow

(Continued from page 107)

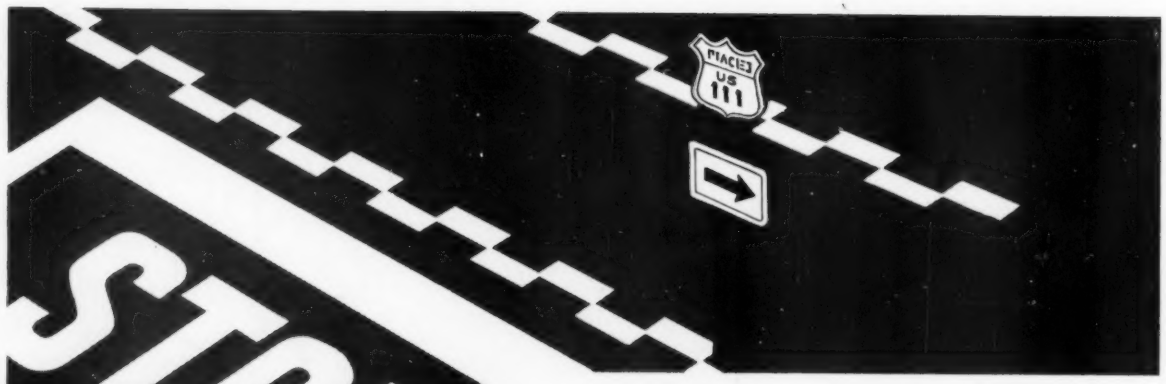
tendent and assistant report to the garage. As soon as the men arrive, plows are attached and 2 to 5 tons of concrete ballast are loaded on the plow trucks. The driver and his assistant then proceed to their route.

Main business streets are not assigned routinely. Because plowing before midnight is virtually impossible, it is delayed until 1 a.m. when five Walter units, two road graders, and two intersection-clearing plows report to the garage. Three plows team up in a sloping, diagonal "echelon" formation, so that they can clear half the street in a single pass. By 7 o'clock the next morning, the pavements of all business streets are clear and ready for traffic.

Sidewalk clearance begins at 6 a.m., using small Ford tractors. Only sidewalks which are the responsibility of the city—parks, city hall streets, auditorium, etc.—are covered. Day crews, using hand shovels, begin to clear crosswalks in the business areas at 7 a.m.

Crews begin to remove the windrowed snow from the business streets at about 11 p.m., with one loader working the uptown and another the downtown area. The loads are hauled to three dumping areas including the stadium, athletic field, and a park. Road graders and Walter trucks then replow the snow to the curb, where it is picked up by the snow loaders. During one night, hundreds of loads of snow are dumped. Snow removal is continued, if possible, until it is complete, or is again attacked the following night. We try to clear snow from all business streets, narrow thoroughfares, from before churches, funeral parlors, private homes where funerals are to be held, and other places requested by the president or commissioners of the Board of Public Works.

When the assignment is complete, all vehicles and equipment are rechecked and maintenance is repeated.



Daylight bright on the darkest night

Longer lasting too!

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PRISMO PLASTIX

. . . the most durable reflective marking material you can use on your city streets! Made of extruded thermoplastic material impregnated throughout with highly-reflective glass spheres, Plastix actually becomes a part of your street surface and lasts indefinitely. Plastix is applied easily and quickly in strips, dots or legends. Brilliant, 24-hour protection for your intersections, crosswalks and school zones!

Write today for free copy of bulletin No. PX-53.

PRISMO
SAFETY CORPORATION
Huntingdon, Pennsylvania

1837

Left to right are Louis Schneider, deputy commissioner of streets; John Wilkins, vice-president, Automatic Signal Division of Eastern Industries, Inc.; Joseph S. Clark, Jr., mayor of Philadelphia; and Richard A. Overmyer, assistant city traffic engineer. Mayor Clark has just put the new vehicle actuated traffic signal system into operation.

By RICHARD A. OVERMYER
Assistant Traffic Engineer, Philadelphia, Pa.

Philadelphia's Electronic Traffic Signals

PHILADELPHIA, PA., has just installed an electronic traffic signal system to expedite Broad Street and cross-street traffic movement. Two requirements were to make available to Broad Street traffic every second of green or "go-ahead" time possible, and to make available the actual time required for crosstown traffic and pedestrian movement.

The problem, then, was to maintain green signals on Broad Street until actual need to change them arose because of crosstown bound cars or pedestrians. A method of automatic actuation of signals was required to achieve this.

In the existing system "actuation" was by detectors, either magnetic or pressure, buried in the paving from 50 to 100 feet behind the intersection. The new system is interconnected from one end to the other with a nerve center (almost an electronic brain) located in the basement of City Hall Annex. This center:

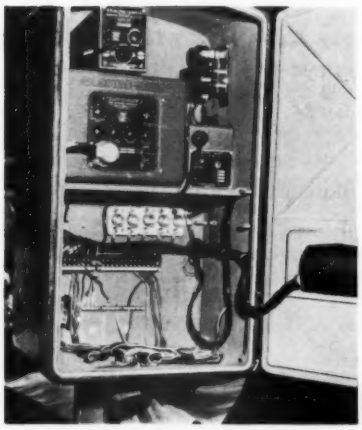
1. Receives impulses from detectors which count traffic movement on Broad Street and computes automatically the best cycle length for north and south movement;
2. Automatically decides the most efficient cycle length for north and south movement combined, and sets it into operation;
3. Favors the heavier movement, whether north or south, thus expediting traffic flow. For example, it will aid inbound motorists and homeward bound motorists at night.

Pedestrian push buttons, to be used when pedestrians desire to cross, are located at each corner of every intersection.

Cost of Installation

For South Broad Street	$110,000
For North Broad Street	175,000
	$285,000

North Broad Street installations will be made in two steps—the first from Arch to Huntingdon Streets, the second from Lehigh to Belfield. The total length will be 7.32 miles. All installation work is being per-



A view of a junction control cabinet, part of the operational vehicle actuated traffic equipment installed by the Automatic Signal Division of Eastern Industries, Inc., at Locust and South Broad Streets, in Philadelphia.

modern note in highway planning...

HAPCO Aluminum Lighting Standards

More and more highway planners are specifying Hapco Aluminum Poles for street and highway lighting. That's because Hapco Standards offer so many advantages over conventional types. Over-all lighting costs are reduced to a minimum since lightweight Hapco Aluminum Poles install easier, require no maintenance. First and subsequent maintenance paintings are never necessary.

Sturdy Hapco Aluminum Poles are spun from Aluminum Alloy, heat treated for maximum strength. They are built to withstand the stress of severe weather and wind conditions without taking permanent set. Their high resistance to corrosive atmosphere makes them particularly suitable to industrial and coastal installations. Besides dollars-and-cents benefits, the classic Venetian column design and silver grey beauty blend well with surroundings lending top eye-appeal to the completed job.

HUBBARD ALUMINUM PRODUCTS COMPANY

Division of Hubbard & Company
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Free—HAPCO Catalog. There is a Hapco Standard designed to fit your individual requirements. Complete details are yours for the asking in the new Hapco Catalog. For a copy contact your Hubbard distributor.

formed by crews of the Traffic Engineering Section.

Control equipment and detectors were manufactured by the Automatic Signal Division of Eastern Industries, Inc., East Norwalk, Conn.

Upon its completion the entire system will contain 223 detectors, 16 miles of cable containing 13 wires, 4 miles of cable containing nine wires and 4 miles of cable containing four wires. It will use three master controllers and 75 local controllers.

Autos Slow Down in East Point, Ga.

Fair Warning

"You fast drivers out East Point way had better beware now," says Chief of Police W. H. Tyler. An electric speed timer is going into service as soon as the public is warned sufficiently.—From a notice by the Police Department.

Left to right: Captain H. D. Brown, Chief W. H. Tyler, and Captain E. M. Blount seem pleased with their inspection of the electric traffic speed timer.

FOLKS may not think there are many speeders in East Point, Ga. (population 21,080), but here are the results of a 30-minute test run. Out of 87 cars checked, 44 were speeding. The average speeder was going 42 miles per hour. The fact was that every other car was speeding. Had we been giving out tickets we'd have given one ticket every 60 seconds.

Big signs reading, "Speed Electrically Timed" were placed at various locations. The timer itself consists of two pieces of hose across the street 88 feet apart. A clock is attached to the hose timing your speed between the two hose detectors. If the clock indicates speeding, the observing officer steps out in front of the car and signals STOP. The driver gets a summons to appear in court.

W. H. TYLER
Chief of Police
East Point, Ga.

Shall We Pour More Cars Downtown?

OVER THE YEARS there has been a succession of more or less elaborate plans discussing—one would like to say solving—Washington's obvious congestion and traffic-parking-transit needs. There were at least two plans in 1950, and another in 1954.

The National Capital Park and Planning Commission 1950 plan said that in the future the circumferential function of highways will be of great importance. Three such ring routes were described: the inner with a radius of 1-1¼ miles from the White House; intermediate 3-5 miles radius; outer beyond the District of Columbia. The report does not state that long-time parking should be removed as far as possible from the business district and located on facilities alongside the ring routes.

The American Institute of Architects, Washington-Metropolitan Chapter, 1950 plan also proposed a ring-road plan. The report envisioned wide boulevard ring roads with adequate amounts of suitably zoned land. Presumably some of this land would be for parking lots.

The 1954 report for the District of Columbia Public Utilities Commission opened with this assertion: "It is common knowledge to all who use the streets that the transit-traffic problems of our nation's capital have reached crisis proportions." Tangles and slow-ups due to parking and unparking are mentioned. "Ban all parking of private automobiles on transit streets," said the report. Is it likely to be done?

Where the Trouble Lies

That's the trouble. Each plan—and this seems to go for most traffic plans—is a little different and seems to aim at reducing congestion while increasing it. Radials pour cars into the heart of the business district where there is a scramble to provide more parking space for these cars.

Consultants cannot ban parking. That's for the governing body to do or not to do. Consultants can say to the client that a bad case of genuine traffic congestion is caused by too many cars using the same streets at the same time. These are usually commuters coming in and going home. The specific for this disease is to provide parking lots for long-time and commuter parkers outside the business district with exits onto circumferential, ring or loop streets or freeway encircling the business district. Do this and traffic congestion will be reduced in the business district. Not doing it keeps the field open for new reports.

An engineer protesting that there's no use recommending removing long-time parking from the business district because the people or motorists won't stand for it is like a doctor saying there's no use prescribing penicillin because sick people won't permit its administration. The proper organization of parking is a specific in the reduction of traffic congestion.

It is true that people want to come to the business district. It isn't true that they want to come there to get into a traffic jam. *In large cities let people park and ride. In smaller cities let people park and walk.*

"Crouse-Hinds 12" Signals

helped cut accidents in half at our most dangerous intersection."

. . . says Police Supt. A. G. Kendall of Fredericksburg, Virginia

"U.S. 1A as it passes through Fredericksburg is probably Virginia's most heavily traveled highway," says Superintendent Kendall. "The intersection at Fall Hill Avenue has had the highest accident rate of all intersections in the city of Fredericksburg.

"During the year preceding the installation of new Crouse-Hinds 12" Signals, the accident rate at this intersection had risen to an alarming average of 1.36 accidents per month . . . including one fatal accident.

"During the 9 months following the installation, the accident rate at this intersection has been lowered to .66 accidents per month. This is a reduction of 51.5%.

"I would say that a vital part in this reduction was played by the greater visibility of Crouse-Hinds 12" Signals."

More than 32 cities in the U.S. and Canada have ordered installations of these giant signals in less than a year. Actual performance has proved them to be:

- ★ **Four times brighter than conventional signals**
- ★ **Easily visible over a mile away under normal conditions**
- ★ **Easily fitted into existing systems at practical cost**

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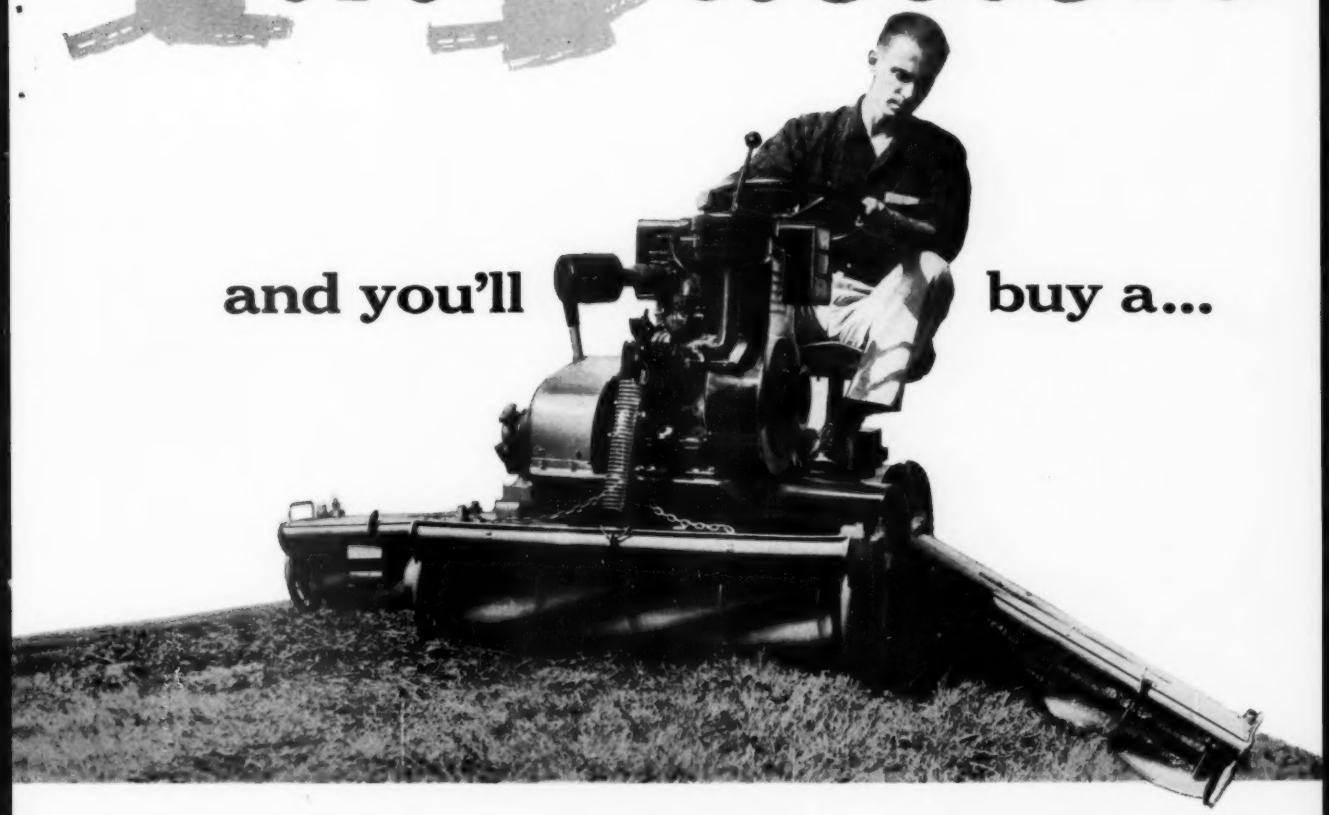

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WORTHINGTON TRIPLEX

You should have a demonstration on your own grounds before you buy any mower! And when you do . . . *do your own testing!* Set *all* the machines side-by-side and compare them. Drive the others . . . then try the Worthington Triplex. There's a big difference. See how easily the rugged 8.4 hp engine starts. Note the transmission with a positive reverse and three forward speeds that gives you everything from a crawl to 8 mph . . . gives the unit everything from putting green frequency to big, fast, three-gang unit capacity. Watch it mow, effortlessly, right up 36% slopes. Look back at the big 85" cutting swath that no other machines can equal and see the clean, even cut. Make a cutting height change with Worthington's exclusive, positive-locking, vernier-scale adjustment. Compare the three big 30" full size 8" diameter reels with other types. Here's a mower that can cut, in one hour, up to 6½ acres . . . even the new Bermudas and clover don't slow it down! This is the mower that's built for long service life and low maintenance. This is the machine for you. You can have a demonstration of the Worthington Triplex any time and anywhere you want it. See and try the Worthington Triplex. Prove to yourself its superiority.

Every Worthington Dealer is a Demonstration Dealer— ask for your demonstration today!

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Autopisto del Este, Caracas, Venezuela

MONOTUBE POLES CONTRIBUTE TO LIGHTING PROGRESS
on the streets and highways of Caracas, Venezuela.

Both single and twin light aluminum Monotube poles were used on the Autopisto del Este to mount the modern mercury vapor luminaires that light this important thoroughfare.

The progressive street and highway modernization program in and around Caracas utilizes thousands of Monotube poles, both steel and aluminum.

Whatever your lighting needs, Monotube poles, either steel or aluminum, are designed and engineered to meet your exact requirements. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

1906 *Fiftieth Anniversary* 1956

UNION METAL

Monotube Lighting Poles

Another avenue joins the ranks of world famous "white ways"—Minneapolis' Lake Street.

Three Miles of Fluorescents in Minneapolis

By RALPH H. SPRUNGMAN
Traffic Engineer
Minneapolis, Minn.

LAKE STREET in Minneapolis, City of Lakes, is now lighted by fluorescent luminaires. It is regarded as a world avenue comparable with such famous "White Way" thoroughfares as Le Cours Vincennes Boulevard in Paris, Bond Street in London, and those in Rio de Janeiro and West Germany.

For over three uninterrupted miles luminaires on trim metal poles beautify, modernize, and illuminate Lake Street, which extends from Lake Calhoun to the Mississippi River bridge.

When the first mile was completed it presented a breathtaking night view. From the practical standpoint, the new lighting look for Lake Street is making merchants happy with increased business. Law-enforcement officials see a decrease in accidents. Residents are prouder of their already beautiful city.

Lake Street has many secondary shopping centers. It moves crosstown, west to east between 29th and 31st Streets, carrying a heavy burden of traffic. It has nine major bus transferring intersections feeding from the downtown Loop, with thousands of passengers making transfers daily. Its extension across the river, Marshall Avenue, is a direct route to St. Paul. It has a high rate of pedestrian movement, and an almost continuous procession of commercial establishments topped by the block-square, 12-story Sears-Roebuck Store at Elliott and Lake Streets.

Lake Street's lighting modernization will be the crowning touch to a transformation—long overdue—that began with final conversion from street cars to buses. When the last "Lake Street" trolley rumbled into the "car barns" on July 10, 1953, that was the

BREAKING BOTTLENECKS AUTOMATICALLY

. . . over miles of traffic intersections

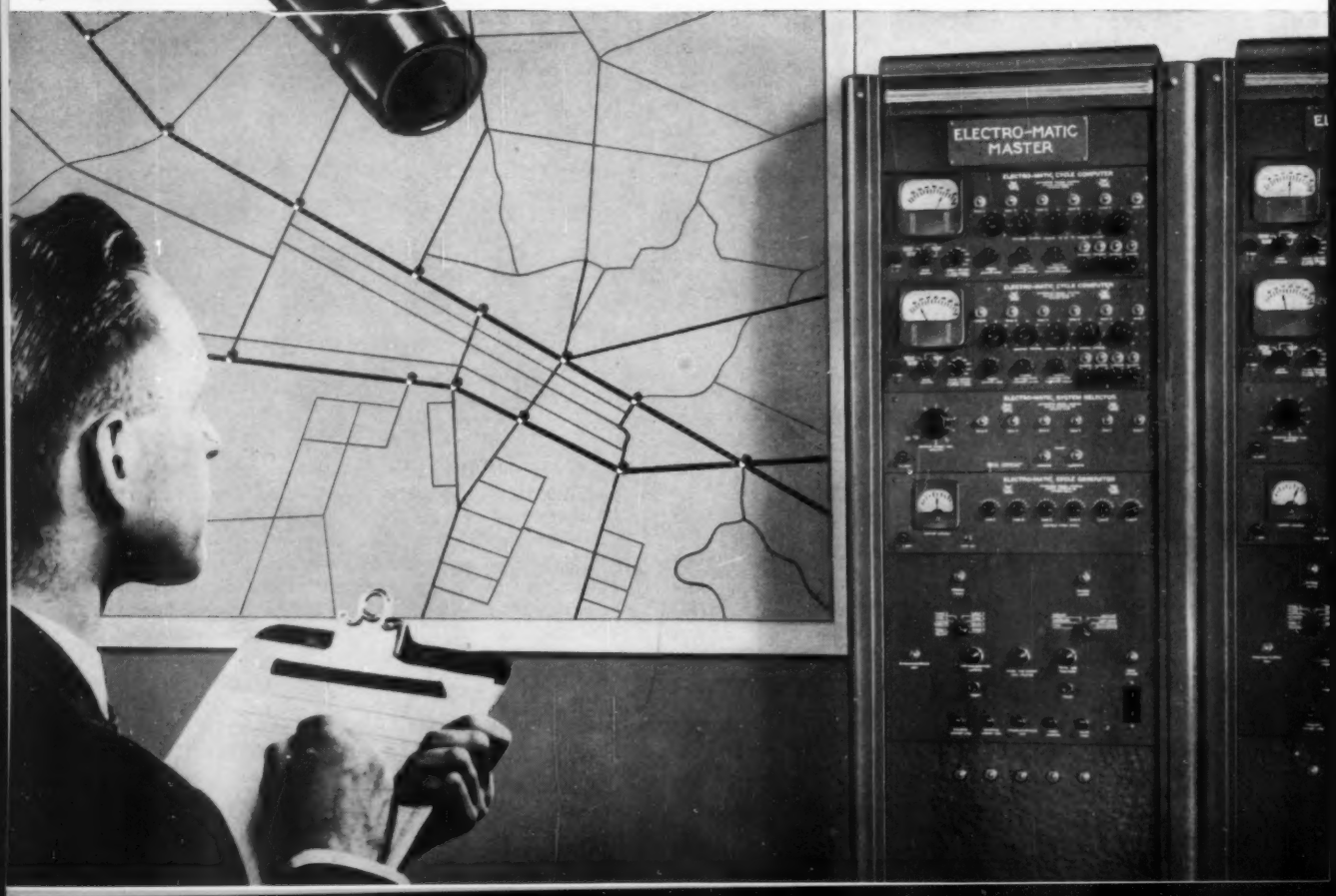
There's fresh hope for congested city traffic. The new Electro-Matic® Master brings coordinated automation to traffic flow in large city areas. The centrally located system does all the complex electronic thinking to move traffic along miles of thoroughfares, smoothly and more efficiently than ever before possible.

The electronic brain of the computer system evaluates thousands of traffic details received electronically from the detectors at dozens of intersections. With astonishing speed it **automatically** instructs each individual traffic light what to do and for how long. With every traffic change, the Electro-Matic Master changes its instructions. If traffic is predominantly heavy northbound, or southbound, or crosstown, or because of special situations, weather, time of day, or circus or football crowds, the computer knows this and adjusts for it.

Most important, by knowing the overall situation, unusual conditions at any intersection are not allowed to influence the smooth flow of traffic over the entire area. This ability to see the forest despite the trees does more to break bottlenecks and improve a large city's traffic conditions than can readily be imagined.

The Electro-Matic Master is adaptable to grid or arterial systems. To discover how it can **automatically** handle your city's traffic, write for Bulletin E-222.

AUTOMATIC SIGNAL DIVISION
EASTERN INDUSTRIES, INCORPORATED
NORWALK • CONNECTICUT



signal for the rebirth of now world-famous Lake Street.

With its between-the-tracks cobblestones, rut-filled tracks and patchwork stone and asphalt paving, Lake Street had a sad, run-down, congested look. Conditions were so bad that thousands of motorists detoured on streets (28th and 31st) running parallel to Lake. Because these streets were narrow and inadequately lighted for heavy traffic, the accident rate took a sharp increase.

Sagging trolley wires, overhead power lines and a hodgepodge of outdated poles (wooden and iron) contributed to the down-at-the-heel look. Lake Street now has the modern, bright look.

Cost of the entire project will be about 1½-million dollars, with $237,000 going for the new lighting. The rehabilitation program includes, besides the fluorescent installations, widening of the street from 50 to 60 feet, new curbing and concrete parking apron, and filling in over the old street car tracks and cobblestones with blacktop paving.

All overhead wires are being removed, with the Northern States Power Company installing the lines in underground conduit. The trolley lines and poles were removed in 1953, after conversion to buses.

Before the Lake Street rehabilitation project could be undertaken, it had to be approved by the vote of more than 50% of the property owners who would be affected, and taxed. At first, the majority of merchants, as expected, were only lukewarm to the idea. Then aldermen George Martins, Frank Moulton, and George Johnson talked before 18 business and civic groups whose activities centered on Lake Street. All 18 groups gave unanimous support to the project.

Property Owners Pay

A Minnesota state law, the "Elwell" law, was applied to the Lake Street project. This law grants a city the privilege to assess the cost of any public project over a number of years to the merchants and property owners who will directly benefit from the project. It is based on a "per foot" frontage, and in the case of this project, will work this way: The estimated cost of the lighting job on Lake Street is $9.06 per running foot. A property owner with a 50-foot frontage will be assessed a total of $453 over a 20-year period, with almost negligible interest rate.

No maintenance costs are assessed to property owners, as in some other cities. In Minnesota, the property owners pay only for the installation, while the city assumes the cost of operation and maintenance out of general tax funds. A bill introduced in the Minnesota Legislature recently to get Lake Street property owners to pay for maintenance was killed.

The contrast between the old and new lighting is almost startling. Yet, the fluorescents consume less wattage. The General Electric Form 206 luminaire is equipped with four 6-foot lamps of 100 watts each. The luminaire emits over 21,000 lumens. Mounted at a 30-foot height, and spaced 47 to 50 feet, in staggered formation, they cast an even illumination.

A measurement of 1.2 foot-candles maintained at pavement level is considered by lighting engineers to be adequate for heaviest vehicular and pedestrian traffic. The Lake Street installation exceeds this by 0.3 foot-candle, or 25%. The extra illumination helps offset the light-absorbing characteristics of the blacktop paving; 16-cell photoelectric light measuring instruments were used in the evaluations. This type instrument is held at 90 degrees to the light source for reading.

The luminaires are of drawn aluminum, with clear plastic globes and Alzak* finished aluminum reflectors. The steel standards, manufactured by The Union Metal Manufacturing Co., of Canton, Ohio, under the trade name Monotubes, are mounted on steel bases set in concrete.

The city has a contract with the Northern States Power Company for complete operation and maintenance of the units, which includes electric power, group replacement of lamps at spaced intervals, painting twice yearly, washing and general repair. The cost is about 15 cents per night per standard and its fixture.

The increased cost of the fixtures and standards will be more than offset by the lower operating costs and longer lamp life over the old installations. The effective life of the G.E. fluorescent lamps is approximately two years, about four times the effective life of the former tungsten filament lamps. Furthermore, a substantial construction and installation saving is being realized for the city because its own labor crews are doing the job.

Fluorescent lighting was selected because it is pleasing and practical. It gives a comfortable, cool-white light, which makes colors look natural, has practically no glare and results in long-range visibility, an important safety factor. The use of mercury-vapor lights was considered but rejected because of glare and bluish cast. Some mercury-vapor light installations, however, are being planned for several outlying trunk highway sections, where faithful color rendition is less important.

Minnesota State Highway officials cooperated with Hugo Erickson, city engineer on street rehabilitations and with T. A. Thompson, assistant traffic engineer on the lighting.

Several other shopping sections of the city didn't lose much time in putting in their requests for similar installations. These will be made in the Loop, where streets are now getting the "new look" as the old tracks and trolley wires disappear. As quickly as ways and means are found, one shopping area after another will be brought into the plan. The Lake Street project is only the beginning.

Some big changes are taking place in the City of Lakes. A civic center for the lower Loop gets main billing. New lighting installations will use several million dollars soon. Our city fathers would like to make Minneapolis the best lighted city in the world.

* Copyright, Aluminum Corporation of America.

Mercurys Light Maplewood, Mo.

MANCHESTER Boulevard in Maplewood, Mo. (13,000 population) has been lighted as a first step in a street-lighting project to include all commercial and residential areas in the city. Utilizing the Westinghouse OV-20 mercury luminaire, Manchester Boulevard's new lighting meets Illuminating Engineering Society standards for street lighting.

HOLOPHANE REFRACTORS
for Safer, Better Residential Street Lighting

Photos: Courtesy of City of Chicago, Department of Streets and Electricity; also Chicago Park District.

2500 Lumen Incandescent REFRACTOR LUMINAIRES

Compare the Brightness of the Road

(Above) Night-time photograph of a residential street in Chicago . . . (Left) Daylight view of same street from same camera location. Note how the brightness of the roadway at night compares favorably with the daylight picture.

Typical Holophane Refractors Designed for Residential Streets

Only HOLOPHANE REFRACTORS with advanced PRISMATIC Design can offer all these advantages

HIGHER PAVEMENT BRIGHTNESS—high angle distributions mean brighter roadways, particularly on dark-top pavements . . .

LUMINOUS REFRACTORS—provide improved beacon effect . . .

SIDEWISE LIGHT CONTROL—directs stray light away from unwanted areas—four different I.E.S. type distributions . . .

MORE ILLUMINATION—on the roadway and sidewalks . . .

BETTER UNIFORMITY of light between luminaires . . .

LONGER SPACINGS—high angle distributions project light farther . . .

LOW SYSTEM COST—fewer units per mile of street required for most effective job . . .

For Better Street Lighting
Specify HOLOPHANE REFRACTORS

HOLOPHANE COMPANY, INC.
Lighting Authorities Since 1898 • STREET LIGHTING DEPARTMENT • NEWARK, OHIO
THE HOLOPHANE COMPANY LTD. THE QUEENSWAY, TORONTO, ONTARIO

HOLOPHANE

Four-Year Program Completed

IN THE last four years, Phoenix, Ariz., and its annexed areas have become one of the better lighted areas in the country. It was on August 21, 1951 that the city entered into a 20-year contract with the Arizona Public Service Company to provide 5,494 new street lights in a 4-year period.

Included in the over-all total are 2,339 lights installed on 31.6 miles of arterial streets, 3,052 residential installations, and 65 alley lights. All the installations have been made. The estimated cost to the city for the system ranged from $120,000 for the first year to $240,318 per year for the full 5,494 street-lighting units. In return, the company has invested $1,300,000 of their own funds during the 4-year period to maintain and operate the system. The city is billed on the basis of the type and number of lamps and standards installed. The increased light provides an effective deterrent to crime and to traffic and pedestrian accidents.

Ten Fluorescents In New York City

A TEST installation of fluorescent luminaires is in operation in the two blocks, 49th to 51st Streets on Lexington Avenue, New York City. It consists of 10 G-E Form 206 fluorescent luminaires, each of the units operating on G-E photoelectric cells rather than on standard astronomical time clocks. The photoelectric cells turn the lights on whenever the natural light falls to a fixed point between dusk and dark and turn the lights out when the natural light rises past a fixed point. Luminaire mounting is at 28 feet on aluminum painted, steel poles, equipped with 8-foot bracket arms.

Fluorescent Luminaires with Plexiglas Shields

THREE requirements for effective lighting of streets and highways are adequate light level, uniform light distribution, control of glare.

An improvement in outdoor lighting combines the fluorescent tube with a shield of Plexiglas plastic. The result is a large-area lamp that gives diffused, low-brightness light. Diffused over the transmitting area of the shield, light from a fluorescent luminaire is many times less bright to look at than from mercury or filament equipment of comparable light output. The result is less glare, less eyestrain, increased safety and a more attractive environment wherever large outdoor areas require illumination.

The widely spread, evenly diffused light from fluorescent luminaires installed at proper intervals provides uniform brightness on the pavement. Objects viewed against it are clearly silhouetted. The wide area of pavement brightness is particularly advantageous on rainy nights because hazardous brightness reflections from wet streets are largely eliminated.

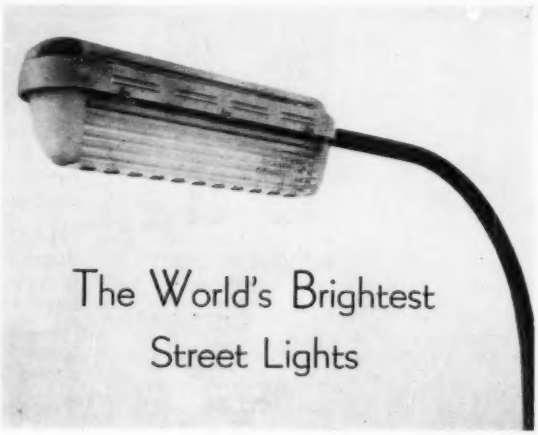
A major advantage of outdoor fluorescent luminaires is their low operating cost, which is due to low power consumption in relation to light output, long lamp life (7500 hours average), and low lamp cost.

The Plexiglas shields enclosing the lamps of outdoor fluorescent luminaires protect them from breakage by low temperatures, wind, and rain. The shield is usually attached to the lamp housing by a metal frame, with gasketing to provide a tight seal against dust, moisture, and bugs.

The strength and resilience of Plexiglas (6 to 17 times more resistant to impact than equivalent thicknesses of glass) enable it to withstand severe blows without breakage. The shields provide a significant measure of safety overhead for pedestrians, motorists, and maintenance crews. The light weight of Plexiglas (only 1.15 pounds per square foot in 0.187 inch thickness, less than one-half the weight of glass) facilitates maintenance.

Typical installations of outdoor fluorescent luminaires with these shields for lighting streets, tunnels, underpasses, bus terminals, airports, plant areas, service stations, parking lots, and subway stations, are found in River Rouge and Niles, Mich.; Hopkins, Minn.; and Alaskan Way Viaduct, Seattle, Wash.

A 16-page booklet titled "Outdoor Lighting With Plexiglas" describes and pictures the fluorescent luminaire when fitted with protective diffusing shields of weather-resistant Plexiglas. For a copy address Rohm & Haas Company, Washington Square, Philadelphia 5, Pa.



THE world's largest fluorescent luminaire employing 12 six-foot lamps and generating more than 64,000 lumens finds first application by the Indianapolis Power & Light Co. on 110-foot-wide Washington Street and Monument Circle in the heart of Indianapolis. There will be 175 luminaires, mounted 33 feet high on davit type poles.

The luminaire is mounted on a pipe tenon entering about 3 feet through a slip-fitter casting. Termination of the pipe is in another casting arranged to permit a leveling adjustment of three degrees.

Air is drawn in through the bottom of the globe to a central chimney running the length of the unit;

There's NO FREE PARKING TIME

When You Install MI-CO MANUALS

MICHAELS PRODUCTS:

Store Fronts
Lettering
Check Desks
Lamp Standards
Marquees
Tablets and Signs
Name Plates
Astragals
Railings
Grilles and Wickets
Kick and Push Plates
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MI-CO Parking Meters
Museum Trophy Cases
Bronze and Aluminum Doors
Bank Screens and Partitions

Bronze and Aluminum Plaques

A run down meter spring usually means free parking time. But with MI-CO Manuals there's no such thing as a run down spring. When a coin is inserted, the motorist turns the handle which actuates the mechanism to deliver the correct amount of time purchased. It's as simple as that.

MI-CO Manual Parking Meters are well-known for their dependability. Simple construction and fewer moving parts make for quick servicing. Should a MI-CO Manual need attention, the adjustment can usually be made in a few minutes at the meter location. Rugged construction assures longer productive life, less maintenance, and consistently higher earnings.

You can place your confidence in MI-CO Parking Meters because they are manufactured by a concern with many years' experience. Then, too, there's the record of MI-CO Manuals in service since 1935 that are still giving a good account of themselves.

If you are interested in any phase of metered parking it will pay you to contact MI-CO. We'll be glad to send records of many installations, details of meter construction, and tell you why it will be to your advantage to install MI-CO Parking Meters.

MI-CO PARKING METERS, P. O. Box 668-A, Covington, Ky.
(The Michaels Art Bronze Co., Inc.)

other openings permit outside air to enter for cooling of the ballasts mounted about the lamps. Top vents help to exhaust the air.

All openings are covered with either fine-mesh screens or perforated metal to exclude insects. This quality of illumination was previously unavailable for America's "Main" Street. Street data and costs are given below.

ILLUMINATION DATA

WASHINGTON STREET:

Calculated average initial footcandles—**4.2.**
Street width is 80 feet.
Sidewalk is 20 feet wide on each side.
Average spacing is 104 feet opposite.
Total length is 6,000 feet.
Consists of 12 city blocks of 500 feet each.

MONUMENT CIRCLE AND APPROACHES:

Calculated average initial footcandles—3.0 to 3.8.
Street width is 48 and 50 feet.
Sidewalks are 20 and 25 feet.
Average spacing is 80 feet one side only on the Circle and 100 feet staggered on the approaches.
Total length, including approaches, is 2,500 feet.

PENNSYLVANIA, ILLINOIS AND MERIDIAN STREETS.

Calculated average initial footcandles—2.5 to 3.0.
Street width is 60 feet.
Sidewalk Width is 15 feet.
Average spacing is 100 feet staggered.
Total length is 2,500 feet.

APPROXIMATE ANNUAL COST TO CITY

WASHINGTON STREET:	
New Lighting	$32,450
Less Old Lighting	8,976
Net Increase	$23,474
MONUMENT CIRCLE AND APPROACHES:	
New Lighting	$ 7,700
Less Old Lighting	2,622
Net Increase	$ 5,078
ILLINOIS STREET:	
New Lighting	$ 3,300
Less Old Lighting	1,584
Net Increase	$ 1,716
PENNSYLVANIA STREET:	
New Lighting	$ 3,025
Less Old Lighting	1,671
Net Increase	$ 1,354
SOUTH MERIDIAN STREET:	
New Lighting	$ 1,375
Less Old Lighting	696
Net Increase	$ 679

* * *

LIGHT UNIFORMITY is an objective of the illumination on the Ohio Turnpike. Over 1,300 new mercury luminaires illuminate the interchanges and toll plazas of the East Gate Section. The General Electric Form 400, with its modern tilted design and improved optical performance, is providing a higher amount of light and better distribution of over-all illumination on the highway than was possible before, while at the same time offering a reduction in glare for the motoring public. The East Gate Section from Youngstown is 22 miles long and is the first portion of the 241-mile Turnpike, scheduled for completion this year.

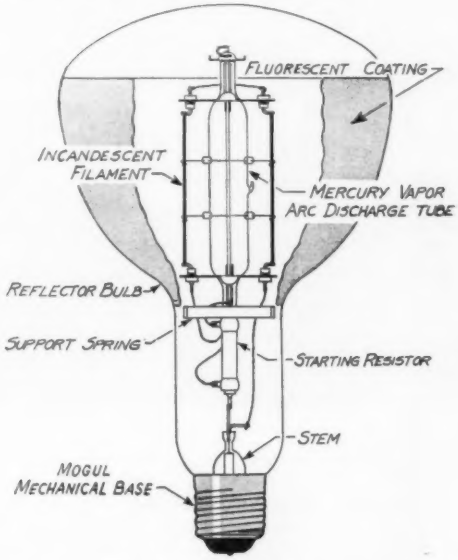
Longer-Lived Mercury Lamps

FOUR of General Electric's Type H 400-watt mercury lamps now produce from 5% to 12% more light initially, give better light maintenance and longer life. Benefits are predicted in the form of better and more economical lighting for streets.

They are the latest in a series of improvements made since early 1954 which have resulted in a 62% increase in lumen output.

Formerly rated at 6,000 hours' burning life, G.E. says their actual life exceeds this figure by as much as 3,000 hours. Early burnouts have been reduced 50%.

Fluomeric Lamp— A New Light Source



This cross-section of the Duro-Test Corporations Fluomeric lamp shows the three light sources contained within it—incandescent, fluorescent, and mercury vapor.

A NEW light source combining features of incandescent, fluorescent, and mercury vapor lamps has been announced by Duro-Test Corporation, of North Bergen, N. J. The lamp's name is Fluomeric and its inventor is Michel Macksoud.

As the diagram indicates, the new lamp emits light by gaseous discharge, by fluorescing of activated phosphor powders, and by tungsten filament. It eliminates the bulky transformer, heavier and more costly than the lamp itself, that is required for each mercury vapor or fluorescent lamp. The lamp can be screwed into any socket and will operate on the usual house current.

It can also be used in street and highway installations in place of mercury vapor lamps, and is made with both mogul and medium bases.

Modern lighting for America's most famous Main Street

Business section of Sauk Centre, Minnesota.
Photo by courtesy of *Town Journal*

LIVELY AND BRIGHT is the business section of Sauk Centre, Minnesota. This typical American' town, made famous in the novel "Main Street" by Sinclair Lewis, chose Millerbernd "Elite' lighting standards for its renowned thorofare.

Here they needed a lighting standard that would be simple to install and to maintain, with the strength that only *cold-roll-formed*, high-strength steel could give. They *wanted* styling that would be distinctively modern so citizens and visitors alike would say "here is a progressive city".

The seventy-three "Elite" standards installed here will prove, *in the years to come*, as now, to have been a wise choice.

Our booklet OTA is filled with ideas to help you with *your* lighting project. Why not get your copy? Write: **Millerbernd Manufacturing Co., Winsted, Minnesota**

Millerbernd

Elite*

LIGHTING STANDARDS

Taxation as a Factor in Property Improvement

By RUSSEL CONKLIN, *Mayor Great Falls, Mont.*

TAXATION is no longer just a means of raising money for governmental purposes—it is the most potent economic force in our country today. Old economic laws of supply and demand are quickly made ineffective when the distribution of wealth is controlled by our tax laws.

There is little we can do about federal income and excise taxes, and not much more we can do about state corporation licenses and personal income taxes; but we can influence greatly the distribution of wealth and the improvement in our own communities by militantly seeking a revision of our discredited general property tax laws.

It is true that there are many individuals and groups of individuals who, through studied ways and means and all sorts of projects, constantly seek the enhancement of value accruing to certain areas and sites of land. The expectation of future unearned gain is an ever-present lure as these values rise, sometimes enormously, in proximity to projects such as new railroads, highways, subways, bridges, industrial centers, and residential areas. Some method must be found to control the enormous speculative profits these people sometimes are able to get. At the same time, we must find a way to rid our cities of the undesirable buildings and run-down property often found in the very heart of our cities. All this and more can be greatly stimulated through taxation. We must appeal to the self-interest of the property owners. For adequate slum clearance and real property improvement more is needed than the use of police power and the application of restrictions on buildings. It must be to the interest of the landowner himself to improve his property. How, then, can taxation be used to bring about the desired results?

Two-Fold Remedy Proposed

The remedy I suggest is two-fold:

First, the abolition of all taxes on personal property; and

Second, the exemption of real estate improvements from taxation.

If these remedies seem radical and far-reaching, the answer is: They are! Perhaps the full effect of the changes that would result cannot be realized at once, and their eventual effect on the development of our communities could not be felt in a short time. But let's consider what the eventual results would be.

To Get Rid of Personal Property Taxes

No states except New York, Pennsylvania, and Delaware, so far as I know, now exempt personal property from taxation; but all tax collecting agencies are fully aware of the difficulties in collecting such taxes. Everybody knows that much personal property escapes taxation altogether and that the uneven burden falls on those who have so little that all they own is in sight and upon those businesses that continue to improve both their stock and their equipment. Intangible personal property escapes almost entirely and those who keep their assets in liquid form or in cash and securities pay little compared with those who must put their ownership in tangible form. Although the elimination of all tax on personal property would not in itself affect the development of our communities except secondarily as it would stimulate business, the very inequality of the tax calls for its abolition on the basis of justice. And the nature of the tax is similar to that on real property improvement. That is the villain who should be killed, and we might as well string up his partner with him. Both are bad, but let's get at the one that is really holding our cities back.

The Commonwealth of Pennsylvania has a law which permits cities of the second and third class to tax real estate improvements and the land itself at different rates. In most states, cities and counties are compelled to tax improvements at the same rate as land. Under the Pennsylvania law some cities have lowered the rate on real estate improvements while at the same time they have increased the rate on the land itself.

Assessors now quite generally value the land and buildings separately. The application of different rates to these assessed values then, is merely a matter of securing permission from the state. Once that permission is granted, we can begin to apply the remedy that will help us to kill the blight of our cities—vacant lots held for speculation and rundown buildings located in the very best sections of our cities.

In some sections of our community, for example, very poor and unsightly buildings can be found on land of high value, while in other sections fine homes and valuable buildings have been erected on land better adapted to farming. A moment's reflection will convince you that the old fire-trap is probably downtown and the new fine home on the edge of town. Look at your own city. Are not some of your better buildings being built in newer sections, while the older and more valuable land is being occupied by buildings that should be condemned? Why? Simply because our present tax laws penalize the person who builds while favoring the one who lets his building run down.

No Incentive to Build

The owner of that old building on some of the best land in your community is unwilling to improve it because we will penalize him by increasing his taxes, not only for this year but for many years to come. We penalize the builder and reward the owner of the old fire trap by lowering his taxes as the building approaches worthlessness. There is no adequate incentive to build. Our best land is held from full use and the builders must move out to the edge of town and use marginal land that might better be left for farms or low-type industrial use. The vacant lot that might be used is priced so high he cannot afford that and the increased taxes, too.

The junk dealer, the second-hand store, and the cheap rooming

house could not afford to stay in the middle of town if land were taxed at its full rental value. Speculation would be unprofitable if the vacant lot paid the same tax as the lot with the modern office building. Slum clearance would be a natural by-product of full land-value taxation. Improvements would be encouraged. New industries would not fear to come in. Business would concentrate on the more valuable sites. And the outskirts of town could absorb the newer and more moderate homes on land that paid small taxes.

These are merely suggestions of what some of the results could be of applying a higher rate to land and a lower rate to land improvements. Improvements eventually should be exempted from taxation, but in the meantime we could make a start if we go after it. A set of tax laws that penalizes the industrious and rewards the indolent is due for revision. We must ask our state government for more home rule. Give us the privilege of lowering the rate on improvements if we cannot abolish such tax altogether, and let us increase the tax on vacant land and land inadequately improved. All we need do is tax all similar land at the same rate, regardless of improvements.

A Gradual Approach Suggested

Perhaps it would take several years to bring about the desired result. Maybe an immediate change would be too difficult to adjust to. But given 10 years, we could decrease taxes on improvements 10% each year, while increasing the tax on land at the same rate. Nobody with improved property would pay any increase in total taxes and soon the speculator would have to sell or build income-producing improvements. Our cities would soon look better. Old buildings would come down. Vacant lots would be used. The better buildings would be on the most valuable land. Factories would come in to provide new payrolls. Of course the speculator and the tenement owner get hurt; but surely these people are not to be favored with the financial reward that they now receive for just sitting tight while the rest of us build up our towns.

There are many other beneficial results to be anticipated from the application of land-value taxation, but specifically from the point of view of those of us who are responsible for the development of our cities, it seems to be the most effective way to get rid of the old, worthless buildings and to insure the full development of our communities.

That's my story. Maybe the remedy seems too simple. Pennsylvania has shown us the way. Such a program can be instituted next year if we go to the Legislature and ask for a law permitting local taxing units levying on general property to tax improvements at a lower rate than land. That's all. Given the privilege, we could use our taxing power to improve our own cities without burdening the average taxpayer with new and higher taxes. In fact, it would give most of them much relief.

Air Pollution Study Published

FULLY AWARE that the air cannot continue to absorb contamination at an ever-increasing rate and still be healthful, the American Society of Planning Officials has published a Planning Advisory Service report on "Air Pollution—a Growing Urban Problem."

Two Categories

Air pollution, which may be found in any industrial or urban area, generally falls into two categories: (1) the smoke from burning coal and fuel oil, and (2) the fumes and gases that arise wherever combustion and evaporation take place—from cars, smouldering refuse piles, gas and oil stoves, or chemical plants. The problems of the future will probably fall under the second heading because "the techniques of controlling smoke emission have been pretty well mastered" so that where there is still a blanket of smoke particles, the fault is not a lack of the knowledge of what to do but rather a lack of laws and their enforcement. Another reason for the changing emphasis is that certain pollutants when mixing with each other form new compounds which may be far worse than the pollution contributed by any single source.

What is happening to the air in Southern California has been happening to a lesser degree in other cities throughout the world. Elizabeth, N. J.; New York; Baltimore; Philadelphia; Washington, D. C.; Detroit; Seattle; and Portland, Ore.—are some of the other United States cities in which smog symptoms have been reported. However, "the extent, duration, and intensity of air pollution in the Los Angeles Basin" has resulted in large-scale investigations of causes and cures. Smog effects on human eyes and respiratory systems, on livestock and vegetation, has proved so critical that the state legislature gave the Los Angeles Air Pollution Control District the power to declare various "alerts" when instruments show a dangerous amount of foreign matter in the air.

On the first stage alert, a warning to stop all outdoor burning is issued. On the second stage, a health menace is declared to exist, and operation of all cars, trucks, and buses may be curtailed. Refineries and other smog producing operations may be shut down. On the third stage alert, all industry and virtually all traffic is to be stopped, and if necessary martial law may be imposed. Thus far there have been only first stage alerts, but on at least one occasion the instrument reading was within a fraction of stage 2.

A "realistic goal" proposed by ASPO is to work for and expect a percentage reduction in over-all air pollution within the first year, a higher percentage the second year, and so on.

Search Classified Ads for Government Employees

THE City of Philadelphia has discovered a fruitful source of qualified people for government employment in the local "Jobs Wanted" columns. *Civil Service Assembly* reports that candidates were found for such hard-to-fill positions as nurses, engineers, and stenographers. Most of those contacted were unaware of the wide range of job opportunities offered by the city, and thus this method of locating job seekers helped spread the word of the good jobs to be had in government.

The Annual Index

for 1955 has been bound into the December issue of the magazine. Additional copies of the Index may be obtained by addressing requests to the Circulation Department, 470 Fourth Ave., New York 16, N. Y.

DRY HTH®

...the best solution for all water treatment problems

When it comes to water treatment, nothing equals HTH for convenience, effectiveness and efficiency.

As a dependable *rated* source of chlorine, HTH is the best product of its kind. It contains 70% available chlorine. It's dry, granular, non-dusty, fast dissolving. It's clean and white . . . yields clear solutions. HTH is stable, too, and you'll find it easy to store without extra care or precautions on your part.

Use HTH in tablet form if you require a slower dissolving source of chlorine—one which will maintain chlorine residual over a long period of time (for example, sanitizing new pipe lines).

Both HTH Granular and HTH Tablets are available in 100-lb. drums and in cases of small-size cans. For more detailed information, just call your HTH supply house or mail the coupon below.

3506

MATHIESON

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Industrial Chemicals Division
Baltimore 3, Maryland

Please send complete information on HTH for water treatment applications.

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Adddress_____

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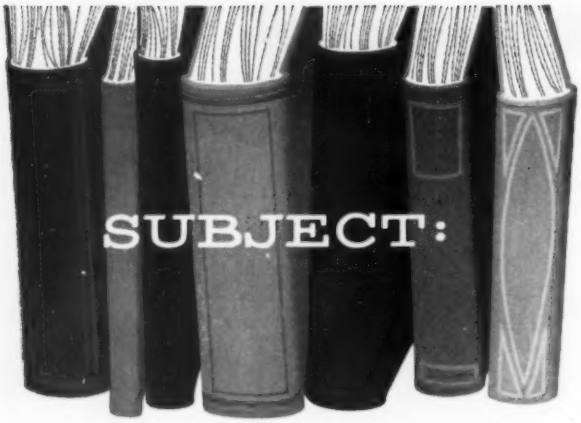

Modernizing receipting procedures

PROTECTION—A SUBJECT EVERY ADMINISTRATOR SHOULD KNOW

Wherever money is collected, only mechanical receipting, such as provided by the Burroughs Receipting and Validating Machine, can protect and control receipts properly and efficiently. Rubber stamps or other manual receipting devices are not adequate to afford the three-fold assurance required:

1. Enforced correct accounting for monies the same day as received.
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How Cities in Kansas Build Asphalt Streets

IN Kansas, cities place two-layer asphaltic-concrete surfacing and single-layer surfacing in about equal yardages. However, they place more than twice as much inverted-penetration sealcoating as all other types of asphaltic surfacing combined. This fact was uncovered in a 10-city AMERICAN CITY staff survey of asphalt-paving practices in the state.

Atchison, last year, placed 3,000 square yards of hot-mix, single-course asphaltic surfacing on old pavement, according to City Engineer Add Ellyson. ***El Dorado*** also concentrated its resurfacing on old pavement. However, of the 52,000 yards of surfacing placed, half was sealcoating and half was single-course surfacing. L. A. Martindale, city engineer, directed the work.

In ***Emporia***, City Engineer R. W. Cunningham used sealcoat to protect 12,700 square yards of stabilized base streets newly constructed last year. For the balance of the program, he resurfaced old pavement, using 69,000 square yards of sealcoating and 11,000 square yards of two-course asphaltic concrete.

Iola also has built and surfaced with sealcoat 4,000 square yards of stabilized streets. The sealcoat also surfaced 30,000 square yards of old pavement, according to C. W. Griffith, city engineer. ***Lawrence*** placed 20,000 square yards of sealcoating and 20,000 square yards of single-course asphaltic concrete on old pavement. City Engineer H. M. Sheridan finds that the public is unusually grateful for a light, cutback asphalt placed on unimproved streets as a dust palliative.

McPherson has 6,000 square yards of new sand-asphalt base, protected by a sealcoat placed last year. The base is 4 inches thick, stabilized with MC-4 cutback asphalt. City Engineer Walter S. Smith reports that it is doing a fine job. In addition, he placed 30,000 square yards of sealcoat on old asphalt pavement. In ***Manhattan***, Assistant City Manager D. C. Wesche reports that, in 1953, his city resurfaced a substantial portion of its old brick pavement with sheet asphalt. Last year, the city undertook no mat-type surfacing, but did sealcoat 72,000 square yards of old asphalt mat pavement.

Parsons restricted its asphalt work to resurfacing old pavement. The program included 30,000 square yards of sealcoating and 13,500 yards of hot-mix, two-course asphaltic concrete. The work was directed by R. W. Bruggeman, city engineer.

Pittsburg used a road-mixed asphaltic concrete to supply a surface for streets with a stabilized base last year. City Engineer C. M. Cooper reports that he uses flint tailings from a nearby lead and zinc mine to stabilize the base and to choke and blot the top sealcoat. ***Topeka*** also stabilized the base of 5,700 square yards of streets last year and placed a sealcoat on the base for a wearing surface. The balance of the program was devoted to surfacing old pavement. The work was directed by W. E. Briscoe, city engineer.

1954 Summary of Asphalt Paving in Kansas Cities

City	Population	Square Yards of Asphaltic Surfacing		
		Sealcoat	Asphaltic Concrete	
			Single Course	Double Course
Atchison	13,000	--------	3,000 o.p.*	----------
El Dorado	10,500	26,000 o.p.	26,000 o.p.	----------
Emporia	16,000	12,700 s.b.** 69,000 o.p.	----------	11,000 o.p.
Iola	7,500	30,000 o.p. 4,000 s.b.	----------	----------
Lawrence	23,000	20,000 s.b.	----------	20,000 o.p.
McPherson	9,000	30,000 o.p. 6,000 s.b.	----------	----------
Manhattan	19,500	72,000 o.p.	----------	----------
Parsons	15,000	30,000 o.p.	----------	13,500 o.p.
Pittsburg	19,500	----------	11,772	----------
Topeka	79,500	5,700 s.b. 21,000 o.p.	8,000 o.p.	----------

* o.p.--on old pavement
** s.b.--on stabilized base

Recommendations for Preventing Juvenile Delinquency

AMONG the steps suggested by the Citizens Union of New York for the prevention and cure of delinquency in that city are several that might well be implemented in any of the large municipalities.

Making every school a community center to be used after school hours and during vacation periods for constructive activities, including supervised recreation, crafts, clubs, forums, trips, and voluntary instruction, is one such recommendation. The cost of converting the building would be small and even the cost of manning the centers with competent people would be far less than the price of the delinquency that might be prevented.

Since each public housing project creates a new community, establishment of similar community centers therein is another suggestion. If there is no school within the community to which the neighborhood center might be attached, it would be well to have these constructive activities right within the community. People not living in the housing project but around it should be included in the neighborhood.

Expansion of day care centers should be encouraged. These centers generally serve children too young to be classified as delinquents, but one of their important by-products is the prevention of delinquency, the seeds of which are often sown when children run the streets unwatched while their mothers are at work. Work camps for delinquent boys (similar to the C.C.C. camps), hostels or homes for young people on probation or parole whose own homes are not suitable, and improved probation services in the courts are other measures strongly recommended in the Citizens Union's program.

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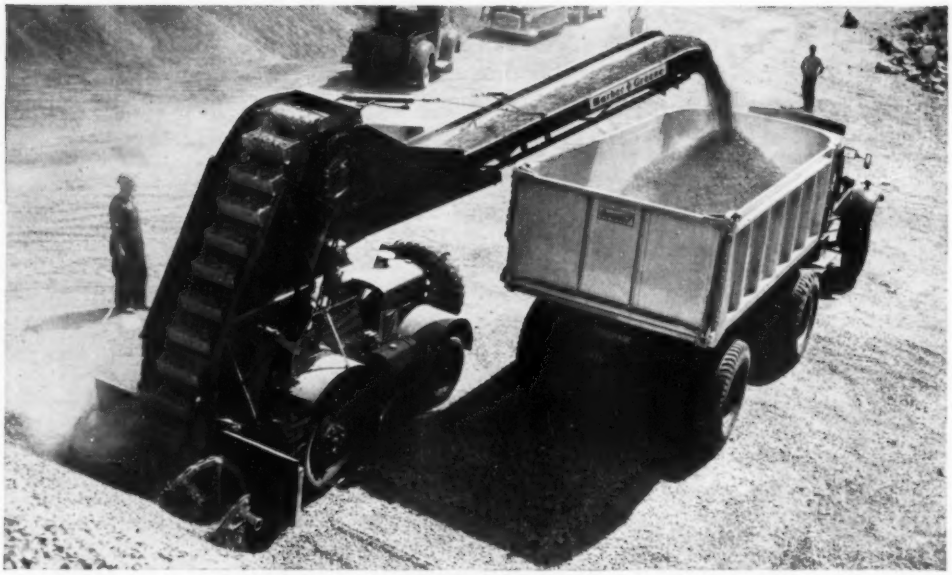

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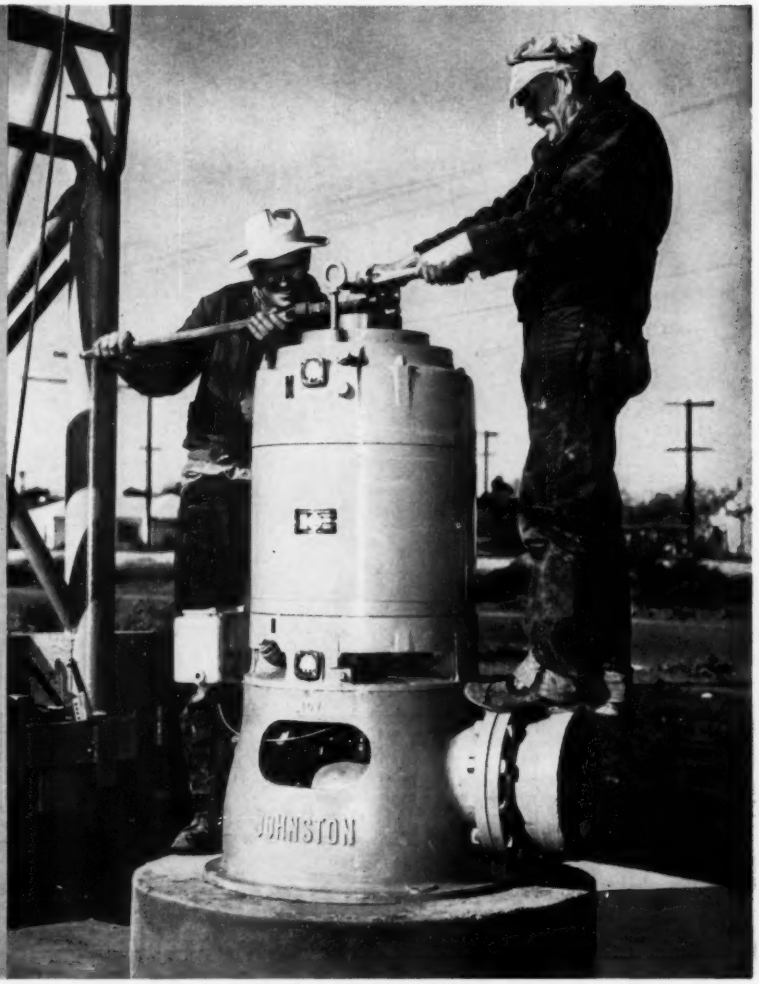

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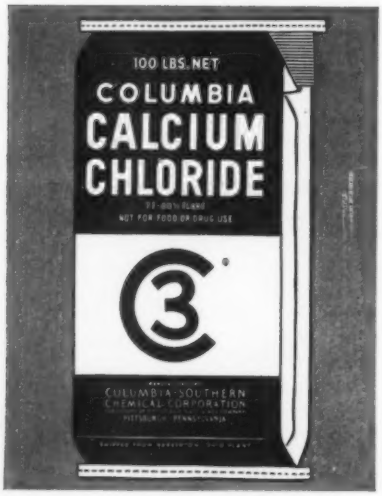

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How Do You Buy Operating Equipment?

By WILLIAM P. HATCH
Manager
Mount Holly Township, N. J.

ONE of our principal accomplishments during the last fiscal year was the setting up of a central purchasing department, and THE AMERICAN CITY has asked me to discuss what we expected of our city purchasing agent.

An answer could be, "the same as any other city expects of its agent." But that wouldn't be discussing the job. Our purchasing agent buys stationery, fuel, building materials, and other bulk supplies. He tries to combine departmental requirements for stock materials and, by purchasing in quantity, illustrate the efficiency of central purchasing in his annual report.

Purchase of equipment requiring some technical knowledge is a different matter. I doubt that the city purchasing agent in most small cities has much to do with the purchasing of street sweepers, incinerator buckets, mobile radio equipment and other special machines and devices. For a central man to specify, to select, and to buy these products demands energy, enthusiasm and industry—and even knowledge and experience. These are the only qualities whose absence legitimately prevents a city purchasing agent from doing such purchasing or playing a leading role in their acquisition.

During the fiscal year 1954-1955, which was Mount Holly's first year under the council-manager form of government, there were a number of accomplishments which entailed the purchase of a very wide variety of products. Some of these accomplishments are listed below:

1. A refuse collection program and a sanitary landfill program for refuse disposal was established.
2. A Park Commission which also handles the Shade Tree function was set up.
3. A grease pit was constructed in the Township garage.
4. A street sign survey was completed and needs are now known.
5. A street-lighting study was made and a modernization program was adopted.
6. Off-street parking facilities were provided in the rear of the Municipal Building.

Considerable special or particular equipment was purchased for the foregoing projects and for the regular needs of our Township.

1. Bulldozer for sanitary landfill
2. Air compressor and grease gun for garage
3. Leaf pusher for street sweeper
4. Police car and a mobile radio set for police car
5. New accounting machines for tax billing, posting, payroll, budgetary control; receipting machine for positive cash control; microfilming equipment for record preservation and storage.

In addition, negotiations were started with the Sewerage Authority for an incinerator, and a parking meter maintenance program was created.

During the 1955-56 fiscal year, to close July 1956, there will be other accomplishments calling for extra purchasing knowledge. These include:

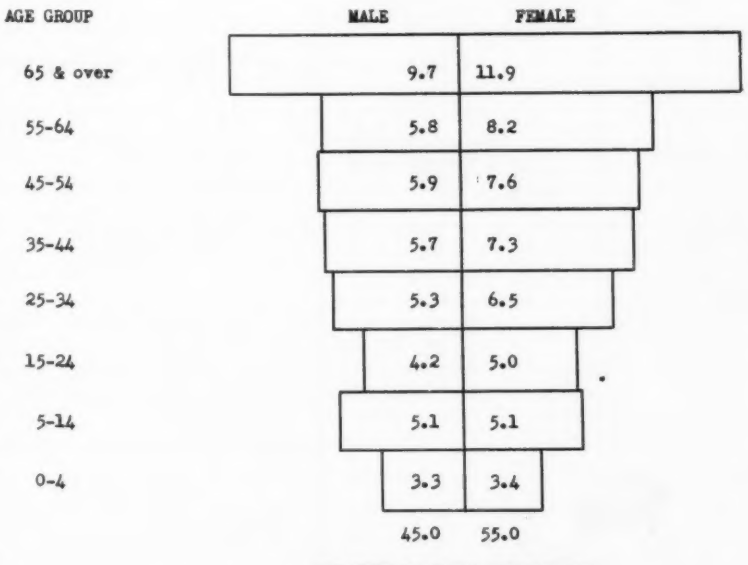
1. A program for better coverage with surety bonds,
2. A study of Mount Holly Township's record filing system, and
3. Carrying through to completion the changeover in our accounting system and records.

Among the particular items of equipment to be purchased will be a police car, a gravel spreader, a power saw, a generator, and emergency lights.

Creation of additional off-street parking facilities is scheduled, as is 100,000 square yards of resurfacing, 25% more than was planned during the fiscal year 1954-55.

St. Petersburg's Unique Population

A STUDY recently made by the St. Petersburg Planning Board emphasizes the city's unusual population problem—the increasingly large proportion of older rather than young people and the equally greater proportion of women than men. It is estimated that these trends will continue to grow along with the increasing proportion of people over 65 in the United States. As a result, retail trade and personal and professional services for retired persons, tourists and other residents are expected to continue to be the backbone of St. Petersburg's economy. Construction of appropriate housing may be added until the land within the city limits becomes scarce. Very little manufacturing expected.



Composition of St. Petersburg's population based on 1950 U. S. Census of Population.

Canton Gets a New Concrete Distribution Line

This crew is putting in the fourth piece of pipe in a 4500-foot concrete feeder line for Canton, Ohio. The line runs from the north corporation line south on Broad, west on 8th, and south on Wertz to 3rd where it ties into an existing 12-inch line. Along the route the new line feeds distribution lines of 6, 8 and 12 inches.

The line went in easily and with little interference to traffic. The backhoe in the picture dug the trench and laid the pipe for the entire line. A supply of short lengths and bevel adapters was kept on the job to make on-the-spot turns to clear obstructions. A bevel adapter is a small special made up of a bell ring and spigot ring set back to back at an angle of 2° to 4°.

The line has been tapped three times since it was laid in 1954. The ¾" taps were made by Canton Waterworks crews using their regular equipment and new-design fixtures furnished by the manufacturer of the pipe. The entire line is 24-inch prestressed concrete cylinder pipe made by Price Brothers Company, Dayton 1, Ohio. Price has plants in Dayton, Cleveland and Miami, Fla.

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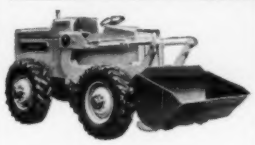
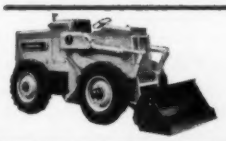


MODEL HH
1½ cu. yd.



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Left:
The pulverized debris is blown into the burlap bag. Rear doors are screened to filter dust from the air as it is forced from the collection compartment.

Right:
The Gutter-Vac tidies up curbsides before the Capitol.

A Street Gutter Vacuum Cleaner

THE vacuum cleaner, the invaluable servant of every good housekeeper, has made a transition from service in the parlor to cleanup duties outdoors. In the nation's capital, a Gutter-Vac, a device which vacuums gutters, is now at work tidying up about 22 miles of downtown curbsides each night.

The vacuum, which accomplishes six times the work in the time that the traditional whitewing with broom and pushcart would require, is a Jeep with a 6-inch suction hose. From 10 p.m. until dawn, the device not only snuffs up the day's accumulation of litter, but chews it to bits and blows the pulp into the big burlap bag carried in the rear compartment. Small and maneuverable, the Jeep moves along at a speed of 5 to 8 miles per hour while the hose sucks up everything within a 16-inch radius of its snout. The Jeep has dual steering, clutch, gas, and brake controls so that it can be operated either from the right or left.

On a typical night, Gutter-Vac collects about 50 cubic feet of debris. As each bag is filled, the operator transfers its contents to regular street corner trash collection boxes which are emptied the following day.

Instead of replacing the District's corps of whitewings, the device is intended to make their daytime operations simpler and more efficient. As William A. Xanten, superintendent of the Washington (D. C.) Division of Sanitation, adds these units, it will probably reduce the whitewing manpower required. The Gutter-Vac took six months' of experimentation and thought by Superintendent Xanten and William F. Roeder, assistant superintendent, and Michael J. Ready, superintendent of equipment.

The Jeep also is equipped with a snowplow lift and is used for clearing driveways and sidewalks.

Cities Move to Enforce Residence Requirements

CITY officials in Newark, N. J., together with Rochester, Buffalo, Cincinnati, and Pittsburgh are taking steps to enforce residence requirements as a condition of employment in city positions. In a recent survey Newark officials discovered that one out of every 11 city employees was living out of town despite a municipal ordinance requiring an in-city address. A recent decision by Mayor Leo P. Carlin and the Newark city council to enforce the long-standing city regulation follows the decisions of officials in Pittsburgh, Buffalo, Rochester and Cinncinnati where employees have been given six months or more to comply with local residence requirements.

In putting the Newark order to work, Business Manager John S. Flockhart has begun by insisting that holders of temporary jobs have bona-fide city addresses.

The Newark order raises a question that many communities find themselves faced with from time to time. Should municipal employees be residents of the cities and towns in which they work?

While the above cities have been tightening up on residence requirements, it should be noted that there is an opposing point of view. Henry G. Hodges in his book, "City Management," states that although residents and politicians of a town may feel that they have a right to work there, it is really the right to participate in the distribution of local public funds that they want. Mr. Hodges says that public employment is a place where free trade and exchange of ideas is essential to build up trained personnel. Intercity exchange of employees, he feels, benefits everyone except the political overlord and the local resident aspiring to a city job. This is especially true in the higher positions requiring a technical skill not always found locally. Public service he says must be a career that attracts ambitious and talented people. Furthermore, in addition to keeping persons from other towns out of local positions, these residence requirements, if generally practiced, limit the hometown boy to local service.

The Civil Service Assembly of Chicago adds to this list of objections the case of employees who cannot afford to live in the town where they work. This is especially true in localities where the average home may cost upward of $30,000.

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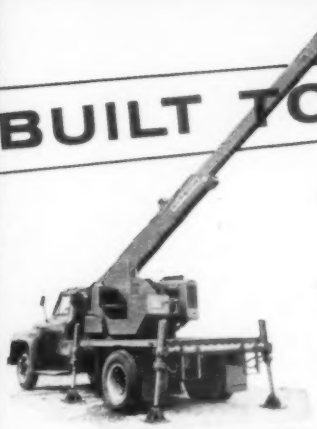
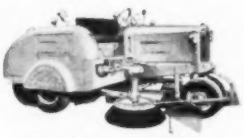
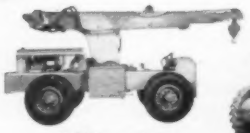


Truck-Mounted Hydraulic Crane



Model "40" Motor Sweeper

Tandem Roller



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Thicker Asphalt Surfacing Needed

WASHO test shows that a flexible pavement has to be heavy for today's traffic

IF a city plans to build a flexible-type pavement on a street carrying heavy truck traffic, it should thicken its asphaltic concrete layer. This appeared to be one of the principal conclusions reached in the test made by the Western Association of State Highway Officials, known popularly as WASHO, recently reported in the Highway Research Board Special Report #22.

WASHO arranged the test to determine the effect of various heavy axle loads on certain designs of flexible pavement. The site selected, in southeastern Idaho, was considered representative of the climate and soil of the western United States. The testing grounds consisted of two loops, each made up of 1,900-foot tangents. Each tangent had five 300-foot test sections separated by four 100-foot transition sections. One tangent in each loop was surfaced with 4 inches of hot plant mix, consisting of crushed gravel with a ¾-inch maximum size, and asphaltic cement with a penetration of 120-150. The other tangent in each loop was surfaced with 2 inches of this mix. A crushed-gravel base having a compacted thickness of 2 and 4 inches underlaid the 4- and 2-inch asphaltic surfacing respectively. Thus the combined thickness of surfacing and base course, not including subbase, was 6 inches in all the regular test sections.

Test Procedure

In one of the five sections on each tangent, the 6-inch combination of surfacing and base was laid directly on the natural soil, an A-4 silt processed to a 2-foot depth. In the remaining four sections on each tangent, it lay on a subbase of gravel with a 2-inch maximum size. The thicknesses of the subbase in the four sections were 4, 8, 12, and 16 inches.

The test traffic consisted of semitrailer combinations with the tractor-drive axles and trailer axles loaded to specific weights. In one loop, vehicles with single axles loaded to 22,400 pounds were operated on the outer 12-foot lane, and 18,000-pound single-axle vehicles on the inner. In the other loop, 40,000-pound tandem-axle vehicles ran on the outer lane and 32,000-pound axle vehicles on the inner. The semitrailers operated from November 6, 1952 until May 29, 1954.

In general, the base soil was an A-4-8 silt of moderate plasticity, with medium to high frost susceptibility, and strength characteristics rather highly susceptible to small changes in moisture content in the range of 22%. Base and subbase gravel was extended at full depth to the shoulder slope. The gravel shoulders were maintained to a higher standard than found on most highways.

Test traffic did not operate on a continuous basis. It started soon after construction was completed in the fall, stopped during the winter and spring, started again in midsummer, stopped during the following winter, and finally operated through the spring of 1954. During the first critical period, June 11 to July 7, 1953 traffic was light, amounting to 832 vehicle-trips per lane. The test pavements subjected to the heavier of the two axle loads in each loop were at a slight advantage due to the fact that these vehicles traveled about a half foot farther from the edge of the pavement than the lighter vehicles. The weather was less severe than normal for the area.

In every case, the pavement with the thicker asphaltic concrete surfacing showed up best. Regardless of axle load, over-all pavement structure thickness, or conditions of the subsurface materials, the performance of those test sections with 4-inch surfacing proved far superior to that of equivalent sections with 2-inch surfacing. Five of the test sections with 2-inch surfacing failed completely.

The additional slab strength of the 4-inch surfaced sections appeared to account for its superior behaviour. It showed a high flexural strength of 1,000 pounds per square inch, and had substantially less deflection than the 2-inch sections.

The benefits gained by paving the shoulders also were pronounced. Failures appeared in the early spring of 1954 in sections that had not been provided with paved shoulders. Significant failures in the balance of the test sections did not appear until many more heavy axle loads had passed over the sections. The waterproofing quality of the paved shoulders, coupled with their effect of creating conditions similar to the interior of the pavement at the pavement edge, accounted for the improvement. The pavement for the shoulders consisted of the same thickness hot plant-mixed asphaltic concrete as used on the traffic lanes.

Other results developed as would be expected. On the basis of total thickness, the thinner sections developed trouble first. Also the heavier loads caused more distress than the lighter.

Contributors

The investigators concluded that for current standards, an 18-inch design thickness with a 4-inch asphalt surfacing would be adequate. A 2-inch surfacing, they felt, would not serve. If the highway has paved shoulders, the over-all structure probably can be 4 inches thinner.

The test was made possible by funds contributed by highway departments of Alaska, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington and Wyoming. The U. S. Bureau of Public Roads contributed engineering personnel, instrumentation, photography, and certain supplies and equipment. The Automobile Manufacturers Association and the Kenworth Motor Truck Corporation loaned new vehicles used for the test. The Truck Trailer Manufacturers Association loaned new trailers; and 23 petroleum companies contributed fuel and lubrication. The American Trucking Associations provided one full-time engineer. The Army Ordnance Corps, Department of Defense, made available a military tank transporter with drivers for special tests.

The complete 212-page report can be obtained from the Highway Research Board, Washington 25, D. C., at a price of $3.60.

An Automatic Efficiency Expert

El Paso, Texas, finds a mechanical way to discourage "deadbeats" and reward efficiency in refuse collection and street cleaning

Mayor Tom Rogers and Councilman Hal Dean inspect and approve the mechanized efficiency expert that improved street-cleaning performance.

By E. F. MUCKELROY, *Superintendent of Sanitation, El Paso, Texas*

WE first recognized the need for an "automatic efficiency expert" in our Division of Garbage Collection where we use a swing crew to help various overloaded routes get back on schedule. From time to time, regular route foremen had complained that the swing crew was not giving them sufficient assistance for the number of hours charged to them. We also suspected that trips to the sanitary fill were taking too long.

In order to document the actual performance of the crew, we needed some sort of device that would note the stops and starts as well as the time that the crew was not working during these periods. I picked up the March 1955 issue (p. 101) of THE AMERICAN CITY and found a story telling how equipment made by the Service Recorder Company of Cleveland, Ohio, was able to meet requirements similar to ours. We promptly investigated further to make sure that this recorder would meet our needs and purchased one of them for use on the truck assigned to this crew.

We were pleased to find that, with this "efficiency recorder" on the truck, the swing crew made more stops per hour than the regular crews. Our complaints about assistance disappeared.

In the meantime, Inspector Carbajal, in charge of the street cleaning division, had received several complaints that one of the power sweeper operators on the night shift in the downtown section was spending considerable time doing his street-cleaning work in an all-night hamburger shop. On checking speedometer readings on this operator's machine, we found that we were getting an average of some 15 curb miles cleaned each night.

So we decided to see how one of the recorders would work here. Almost by magic, the number of curb miles cleaned each shift began to increase. By the end of the first week's use of the recorder, the operator had reached a new high of 23 curb miles per shift on the night machine. This represented a 50% increase in performance, which is a fair record for a unit no larger than the recorder.

Superintendent Muckelroy (right) demonstrates how the recorder fits on one of El Paso's Hydepack refuse-collection trucks.

Use of Recorders Welcomed

Later, we decided to purchase four more recorders and install them on other power sweepers used on the day shifts. The men did not resent their use since promotions and increases in pay are on an "efficiency" basis. The recorders provide a fair and impartial way of documenting daily performances.

With the recorders on the machines, curb-mile records began to soar, and our truck crews that follow the power sweepers found that they had to hustle to pick up all the debris gathered by the sweepers. The added miles of street cleaning done by our fleet of machines paid for the cost of the recorders after the first week's use.

Our daily log of sweeper performance tells the story of the help these little "automatic efficiency experts" have given us. We will be glad to provide copies of the log to anyone interested. For the sake of brevity, we have summarized the data in the following table:

Machine	Period (in days)	Recorder Not Used (in miles)	Recorder Used	% Increase
No. 1	5	86	145	70
No. 2	3	63	88	40
No. 3	5	104	124	20
No. 4	3	60	84	40
No. 5	5	100	149	49

The period referred to in column two is a consecutive series of days before the recorder was installed, and an equal number after it was used.

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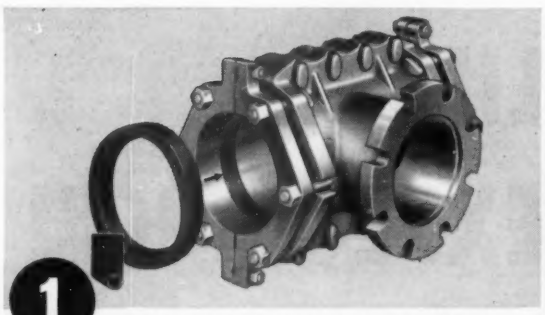

1

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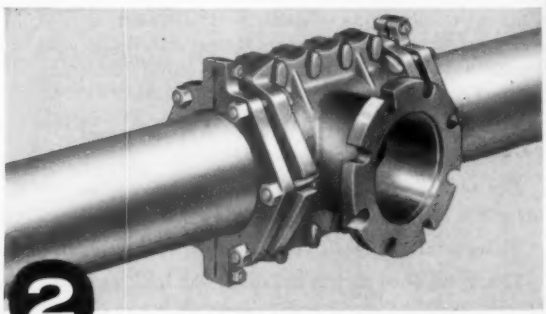
The extra length and heavy-duty, ribbed construction give strength to withstand strain of the tapping operation. Helical spring in gasket prevents extrusion between pipe and sleeve. Always a tight, permanent seal!



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EDDY mechanical joint tapping valves and sleeves

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According to a recent nation-wide study, meter life averages *less than 10 years!*

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This year, 2042 Duals celebrate their *18th birthday!*

75% of all Dual meters installed 'way back in 1937 are *still* operating!

And there's plenty *more* proof that Duals are your best choice for on-street or off-street use . . . for *any* parking requirement! Write today for helpful bulletins on SINGLE or DUBL-DUAL meters. Write to *The Dual Parking Meter Company* (Subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

For extra value get **DUAL**
PARKING METERS

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Required Distances Between Specified Types of Establishments

NEW YORK. *Application of Chiapperini*, 143 New York Supplement (2d) 735 (Supreme (lower) Court, June 27, 1955).

MICHIGAN. *Tabaczka* v. *Michigan Liquor Control Commission*, 70 North Western (2d) 689 (Supreme Court, June 6, 1955).

In the New York case, petitioners were held to be able to set up a fruit and vegetable stand in front of their premises, because the requirement that such stands must be located at least 100 feet from a subway entrance was held to apply only to those cases where subway entrances existed along or adjacent to curb lines of streets.

The Michigan case involved a requirement that licenses for the sale of alcoholic beverages at retail should not be granted for any site within 500 feet of a church or school building. In this instance, the market applying for the license was located more than 500 feet from a church and its school, but less than 500 feet from a rectory attached thereto. The Court held that in this situation the restriction did not apply.

Expansion of Nonconforming Uses—Gravel Pit

NEW YORK. *Town of Somers* v. *Camarco*, 308 New York 537, 127 North Eastern (2d) 327 (Court of Appeals, June 2, 1955).

In this case, a 55-acre tract, bisected in the middle by a road, was purchased for its sand and gravel, and operations were started to take out such materials on at least one side of the road. Subsequently, the area was placed in a residential district, with the usual provision authorizing the continuation of existing nonconforming uses. However, subsequent amendments removed such protection for "natural product uses." Continuation of operations were challenged by residents living nearby. By a 4-3 vote, the Court held that the amendments removing the protection afforded nonconforming uses were unconstitutional. In doing so, the Court noted that the validity of zoning regulations would vary according to the circumstances.

> "In addition, the extent of the reasonable exercise of the police powers varies directly with the degree of the density of the population in the city, town or village involved. An ordinance which might be considered as reasonable if enacted in New York City, could be considered as unreasonable if enacted in a smaller political sub-division."

However, Judge Fuld, speaking for the 3 dissenting judges, argued vigorously:

> "While the effect of the Court's decision will not, of course, toll the death knell of zoning, it certainly ushers in a sad day for sound, wise and adequate municipal planning."

> "The mere intention to excavate the remainder of the land did not amount to an existing use so as to entitle defendants to a nonconforming use encompassing and protecting their entire tract of 55 acres."

He also argued that, if nonconforming sand and gravel pits were given the right to expand indefinitely, this would place such establishments in a different category from other uses, with special privileges. However, the dissent also stated that certain of the provisions for termination were unconstitutional.

Public Utility Structure In Residence District

MASSACHUSETTS. *Town of Wenham* v. *Department of Public Utilities*, 127 North Eastern (2d) 791 (Supreme Court, June 30, 1955).

A gas transmission company proposed to build a "gate house" with apparatus to reduce the gas pressure for a long-distance pipe line, and to prepare the gas to enter the local distribution system. A Massachusetts statute provided that structures of a public service corporation could be exempted from zoning regulations if the State Department of Public Utilities found that such structures were "reasonably necessary for the convenience or welfare of the public." In this case, after such a finding, petitioner argued that the proposed location was not the most economical or efficient one, and in answer it was argued that it was the only site available. However, the Court held that under the statute, the site did not need to be the best possible one, but only had to conform with the language quoted above.

Extension of Nonconforming Railroad Spur in Residence District

TEXAS. *Gulf, Colorado and Santa Fe Railroad Co.* v. *White*, 281 South Western (2d) 441 (Court of Civil Appeals, June 24, 1955).

In this case a railroad switch track was located within a commercial district in Dallas, and the railroad sought permission to extend this track to a point within a residential district. The local Board of Adjustment granted permission, subject to specified conditions.

In a lawsuit brought by neighboring residential property owners, the Court held that since the Texas statutes gave the railroad the power of eminent domain to acquire needed property, the extension of the railroad track was exempt from the local zoning ordinance. However, the Court also upheld the conditions imposed by the Zoning Board.

Industrial Slum Clearance for Residential Redevelopment

NEW YORK. *Bleecker Luncheonette* v. *Wagner*, 141 New York Supplement (2d) 293 (Supreme (lower) Court, March 28, 1955).

Most Title I slum clearance projects in the country have involved clearance of residential slums for residential redevelopment, although a substantial number of projects recently started are designed to redevelop slum land (normally residential slums) for industrial purposes. Federal aid is available under Title I for a large and increasing number of different situations, rather arbitrarily defined but still reflecting a primary emphasis upon housing — with gradually expanding opportunities for nonresidential redevelopment. The present action involves a somewhat less common situation—clearance of an industrial slum and its redevelopment for residential purposes.

Washington Square in Greenwich Village is one of the most attractive and historic areas in New York City. While the population of Greenwich Village is made up of quite diverse groups, it is an unusually articulate community, particularly for a predominantly tenant-occupied area. Substantial frontage about the Square is now owned by New York University, much of it used for educational purposes. North, west and southwest of the Square there is a mixture of renovated brownstone row houses, old tenements, and new luxury housing. Southeast and east of the Square is a run-down industrial area, consisting largely of old loft buildings along narrow streets, which are often almost impassible because of trucks unloading across the curb. There are sound planning reasons for redeveloping the area for residential purposes.

One of the New York City Title I projects involves the proposed redevelopment of a substantial part of this area, consisting primarily of blighted industrial buildings — with the Washington Square frontage to be used by New York University for educational purposes, and with six blocks to the south to be used for small high-rent apartments, averaging around $50 per room per month—assuming that those sponsors were the successful bidders for the land. Both the city and the federal authorities approved this proposed project.

In challenging condemnation for such educational use, a taxpayer's action alleged that the whole scheme was merely a subterfuge to turn over property to New York University, and that the proposed public auction was a fraud. A number of other technical objections were raised. It appeared that the plaintiff's land was not located within the area which was to be redeveloped by New York University.

The Court held that the record included substantial evidence that this was a substandard and insanitary area, and that the redevelopment would be of substantial public benefit.

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1 more blocks of collection each day!

You make more collection stops . . . cover more blocks . . . increase route lengths . . . with fewer collection vehicles when M-B Packers are on the job. Loads faster too . . . large convenient side doors . . . fewer packing cycles . . . speeds the entire collection process. Powerful progressive compaction means more pounds per load . . . fewer dead run trips to the dump and back.

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Costs less to buy, operate and maintain. Requires lighter truck chassis than comparable size complicated hydraulic packers. Fewer packing cycles and fewer dead run trips back and forth to dump save fuel, time, wear and tear. Simple winch operated packing plate does away with yards of tubing, expensive fittings, pumps and leaking hydraulic lines. M-B Packers do the job at lowest cost per ton.

3 packs anything — no "call backs"!

Anything and everything goes into an M-B Packer — large cardboard boxes, wet garbage, wooden crates, drums, springy tires, powdery ashes, leaves, brush — there's no selective loading or pre-crushing. Those occasional items too large for the extra-wide side loading doors can be carried on the flat reinforced roof.

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Contributed by WILLIAM A. JABINE, Attorney

Zoning Briefs

California

ZONING LAWS NOT CONTRACTS SO MAY BE AMENDED. In accordance with zoning ordinance permitting exceptions for oil well drilling in residential zone, Los Angeles Regional Planning Commission granted drilling permit for defendant's land. Plaintiff opposed permission, but Court ruled that quasi-judicial action of the Commission could not be reviewed, pointing out that, "Zoning regulations are not contracts made by the county and may, therefore, be modified by the latter." California. Triangle Ranch v. Union Oil Co. of California, 287 Pacific 2nd 537. (District Court of Appeals, Sept. 13, 1955.)

Connecticut

RESIDENTS OF ADJOINING MUNICIPALITY RECOGNIZED AS AGGRIEVED PARTIES. Residents of neighboring municipal unit who attended hearing on zoning change in adjoining town held "aggrieved" parties entitled to bring action. Connecticut. Hamelin v. Zoning Board of the Borough of Wallingford, 117 A. 2nd 86. (Court of Common Pleas, Aug. 3, 1955.)

Florida

SETBACK REQUIREMENTS DISCRIMINATORY—MEASURED FROM NONEXISTENT STREET. Setback requirement held discriminatory as it measured distance from street not yet in existence rather than from boundary of property. Florida. Mayer v. Dade County, 82 So. 2nd 51 3. (Supreme Court, Sept. 21, 1955; Rehearing denied Oct. 10, 1955.)

Georgia

CHANGE IN ZONING ORDINANCE FAILS TO RESCUE FILLING STATION. Although construction of filling station begun in area zoned for purposes which did not include filling stations, ordinance was later changed to permit filling stations. Court upheld right to plead the amendment permitting filling stations, even though construction was started before it was passed, but ruled that injunction could be granted forbidding the construction of station because new ordinance required filling stations to be "wholly inside" buildings and station in question was "largely outside." Georgia. Atlantic Refining Co. v. Spears, 89 S. E. 2nd 177. (Supreme Court, Sept. 12, 1955.)

Illinois

INFORMAL PROCEDURES IN REZONING BY COUNTY BOARD UPHELD. A rezoning action was taken by County Board after matter was referred to Board of Appeals for hearing. Court held that alleged informalities in procedure at hearing would not invalidate subsequent action by County Board after receiving report of Board of Appeals, as County Board had final legislative authority. Additional objection that petition for change was made by person, not real owner of property but acting for various county employees, held insufficient to cause reversal of County Board's action in making change. Illinois. Village of Justice v. Jamieson, L N.E. 2nd 269. (Appellate of Illinois, Sept. 20, 1955.)

MAPS HELD PROPERLY IDENTIFIED ALTHOUGH NOT PRECISELY MARKED. Ordinance barring trailers challenged on ground that maps filed with County Clerk lacking legend "Zoning Map" not properly identified as part of ordinance. Court held that as maps reached Clerk through deputy, who was clerk of board that passed ordinance, and were kept on file for public inspection, they fulfilled requirements. Illinois. Will County v. Stanfill, 129 N. E. 2nd 46. (Appellate Court of Illinois, 2nd District, Sept. 27, 1955.)

ORDINANCE VALID IN GENERAL BUT ARBITRARY IN PART. "An ordinance may be valid in its general aspects, but as applied to a particular parcel of property may be so arbitrary and unreasonable as to result in a confiscation and be deemed invalid with reference to that property." Illinois. River Forest State Bank v. Village of Hillside, 129 N. E. 2nd 171. (Supreme Court, Sept. 23, 1955.)

ZONING TO REDUCE TRAFFIC CONGESTION MUST PROMOTE PUBLIC SAFETY. In case involving request for change from residential zoning to permit truck terminal on busy Chicago avenue, held that increase of 40 trucks on highway carrying 40,000 to 50,000 vehicles daily would not unduly increase congestion, saying: "Although zoning for the purpose of reducing traffic congestion is a permissible exercise of the police power, a zoning ordinance for such purpose must bear a reasonable relation to the public safety." Illinois. Exchange National Bank of Chicago v. County of Cook, 129 N. E. 2nd 1. (Supreme Court, Sept. 23, 1955.)

Louisiana

DICTIONARY AIDS COURT, PRACTITIONER DEFINED. Citizens' association objected to house in two-family zone built in 1926-27 as two-family dwelling and converted to three-family dwelling in 1933 by installation of bathing and cooking facilities in basement. Prior to 1929 when zoning ordinance became effective, owner has used three rooms in basement as office for work as Christian Science practitioner. It was claimed that this use made house a three-family structure. Court held that since use as office did not make house a three-family unit in 1929, it must comply with ordinance now. Court also defined Christian Science practitioner as professional person. Louisiana. Audubon Area Zoning Association v. Kreshevski, 82 So. 2nd 460. (Court of Appeal of Louisiana, June 15, 1955; Rehearing denied October 10, 1955.)

Massachusetts

LOCAL AUTHORITIES BEST JUDGE OF DESIRABILITY OF MOTEL. Where permission for construction of motel in summer resort was granted by local authorities and residents objected, Court refused to review action of local authorities, saying, "Zoning has always been treated as a local matter and much weight must be accorded to the judgment of the local legislative body since it is familiar with local conditions." Massachusetts. Burnham v. Board of Appeal of Gloucester, 128 N. E. 2nd 772. (Supreme Judicial Court, Sept. 19, 1955.)

Michigan

ZONING DEFINITIONS DO NOT APPLY TO RESTRICTIVE COVENANTS. In action seeking to enforce restrictive covenant in deed which forbade construction on corner dwelling lot within 30 feet of road, Court distinguished between zoning regulations and restrictive covenants as follows: "Nor can definitions adopted for legislative purposes in housing codes and zoning regulations be employed in interpreting restrictive covenants." Michigan. Oosterhaus v. Brummel, 72 N. W. 2nd 6. (Supreme Court, Oct. 3, 1955.)

PRESERVATION OF HILLS NOT PROPER CAUSE FOR ZONING. Where contractor undertook to level tract in residential zone and claim was made that he was conducting sand and gravel business, Court held that work was being done to prepare land for residences. Michigan. Bucklet v. City of Bloomfield Hills, 72 N. W. 2nd 210. (Supreme Court, Oct. 3, 1955.)

COMPARATIVE LAND VALUES CONSIDERED IN JUDGING ORDINANCE "UNREASONABLE". In case in which building permit to construct commercial structures at busy corners was refused under zoning ordinance restricting area to residential use, Court pointed out that if residences were constructed on lots in question they would face supermarket, drug store, beauty parlor, and other stores; that for residential purposes lots would be worth from $20 to $45 per foot as compared with $200 per foot for commercial purposes. Ordinance was held "unreasonable and confiscatory." Michigan. McGiverin v. City of Huntington Woods, 72 N. W. 2nd 105. (Supreme Court, Oct. 3, 1955.)

New Jersey

"FIRE DISTRICTS" INVALID—OBJECTIONS MADE TOO LATE. Where town without zoning ordinance attempted land use regulation by dividing area into "fire districts", Court held "fire districts" invalid but refused relief to landowner who delayed too long in bringing action. New Jersey. Marini v. Borough of Wanaque, 116 A. 2nd 813. (Superior Court of New Jersey, Appellate Division, July 5, 1955.)

Pennsylvania

SHOPPING CENTER PERMITTED—NOVEL ZONING THEORY TURNED DOWN. Change in zoning requirements to permit construction of shopping center upheld. Court said, "In a manner more praiseworthy for its frank approach than for its legal authority, the appellant argues that as owner of a commercial building in the 'original commercial district', he is entitled to protection against competition in a new area. This, as far as we have been able to determine, is a new concept concerning the purpose of zoning, and should be promptly laid to rest." Pennsylvania. In Re Lieb's Appeal, 116 A. 2nd 860. (Superior Court, Sept. 28, 1955.)

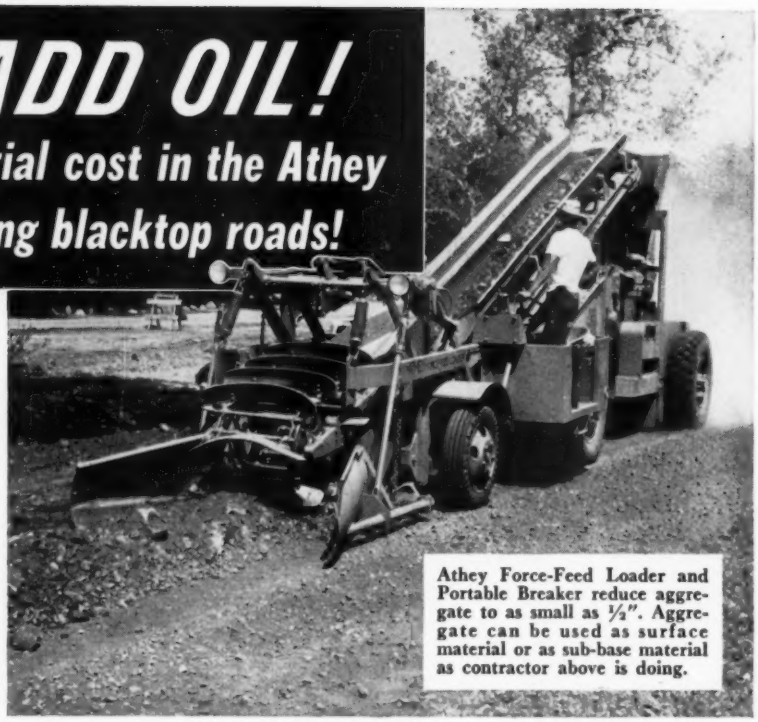
Rhode Island

INTERESTED PARTY NOT NOTIFIED—CHANGE IN CLASSIFICATION INVALID. When application for erection of filling station granted after hearing, owner of property within 100 ft. of site brought action claiming he had not received written notice of hearing as required by zoning ordinance. Despite advertisement of hearing in newspaper, Court held that failure to send written notice deprived zoning board of jurisdiction. Rhode Island. Radick v. Zoning Board of Review, 117 A. 2nd 84. (Supreme Court, Oct. 14, 1955.)

COURT REVIEW DENIED—LOCAL ACTION LEGISLATIVE. Where five lots were rezoned as business, and neighboring landowner sought to have action reviewed, Court denied writ of certiorari on ground that rezoning action of Council was legislative rather than judicial. Rhode Island. Alianiello v. Town Council of East Providence, 117 A. 2nd 237. (Supreme Court, Oct. 18, 1955.)

JUST ADD OIL!

it's the only material cost in the Athey method of rebuilding blacktop roads!



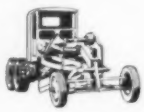
Athey Force-Feed Loader and Portable Breaker reduce aggregate to as small as ½". Aggregate can be used as surface material or as sub-base material as contractor above is doing.

Bituminous or "Blacktop" surfaces are expensive to replace. The cost of aggregate for one mile of 20-foot, 3-inch mat blacktop pavement is approximately $3,000.00. But with the Athey Method — Athey Force-Feed Loader and Portable Breaker team — you reclaim the existing aggregate right on the spot, quickly and easily — and *just add oil* for a new and long lasting road.

Besides making use of materials already in place, the Athey Method requires only a minimum of equipment, the Athey team, a motor grader and an oil distributor truck. There are fewer transportation problems . . . no problems involving the availability of new aggregate.

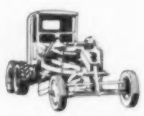
Labor requirements are small — your labor crew is just four men including the operator of the oil truck. Most important of all, the Athey method is fast. One mile of secondary type county road of the above dimensions can be reclaimed and rebuilt in approximately 20 hours by following the 7 simple steps of the Athey Method.

SCARIFYING OLD SURFACE



Motor grader scarifies the blacktop surface to a depth of 6 or 8 inches. This also removes oversize from subgrade which can cause surface failures. This oversize is crushed and added to existing mat aggregate.

WINDROWING THE SCARIFIED MATERIAL



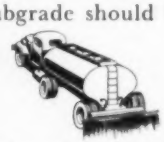
Motor grader windrows the scarified material for pickup, loading and crushing by Athey Force-Feed Loader and Portable Breaker team. Windrow should range from 1½ cubic feet per lineal foot to 3 cubic feet per lineal foot.

REWORKING BLACKTOP TO SPECIFIED SIZE

Exclusive "full-floating" feeder design of the Force-Feed Loader picks up scarified material, conveys it to the Portable Breaker. Material is reduced to desired gradation by impact breaking and is dropped back on the road in windrows.

REPAIRING THE SUBGRADE

Before the reclaimed surface is relaid, existing flaws or defects in the exposed subgrade should be corrected.



OILING

Road oil is the only material cost in the Athey Method. After processed windrows are flattened, the surface is shot with new bitumen. Amount required will always be less than you would need for new aggregate. You save on oil as well.

MIXING

Oiled material is bladed and mixed by motor grader. Portable Breaker can be disconnected and Athey Force-Feed Loader used as a single unit to churn and mix the material.

FINISHING

After oiling, the material is spread and shaped. Rollers may be used for compaction or traffic allowed to do the job. An oil-sand or chip cover pass may be desired for wear surface. Many cities, counties, states and contractors have already used the Athey Method successfully, and report savings from 25% to 60% reclaiming different types of material. The Force-Feed Loader can also be used for loading rock, dirt, sand and snow.

See your Athey-Caterpillar Dealer for more information and actual, detailed case histories or write:

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Chicago 38, Ill.

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS

Charles S. Rhyne, General Counsel

Admissions Tax—Charge of Full Cent Where Fraction Involved Valid

In action by theaters of New York City for judgment declaring void portion of local law which directed collection of an additional cent tax of admission tax if only half or major fraction of cent tax was due, held, that where statute authorized municipalities to levy certain taxes at 5% rate, legislature intended that the 5% should be subject to the manner of handling the breakage as is usual in commercial transactions. Ordinance valid. *RKO-Keith-Orpheum Theatres* v. *City of New York*, 127 N.E.2d 284 (N.Y., May 26, 1955).

Air-Conditioning Pipes—Plumbing Permits Not Needed For

Under the court's interpretation of the city's plumbing code, certain air-conditioning equipment installers using certain pipes to catch condensation drippings that emptied into the sewer system need not apply for plumbing permits to install such pipe. *McNeil* v. *City of Omaha*, 70 N.W.2d 83 (Neb., April 29, 1955).

Airports—Landing and Take-Offs Enjoined—Trespass

In action against county which maintained an airport and against airlines to enjoin flight and to obtain compensation for alleged taking of plaintiffs' property, held, equity court had jurisdiction to enjoin trespasses arising from frequent interstate or intrastate flight over landowner's property below or outside minimum safe altitudes of flight and to enjoin landings and take-offs, but it did not have authority to assess damages for wrongful taking of plaintiff's property. *Gardner* v. *County of Allegheny*, 114 A.2d 491 (Pa., May 23, 1955).

Annexation—City-County Relations—Exclusive Control of Area Given City

Where city council sought to annex certain territory and approved circulation of petition for consent to commence proceeding for annexation, held, such action gave that body exclusive control over such territory, and county had no power to proceed with later petition for incorporation of city including part of territory involved. *Broghi* v. *Board of Supervisors of County of Alameda*, 284 P.2d 537 (Calif. App., June 8, 1955).

Assessments for Arterial Highways Upheld

City of Louisville ordinance providing for street improvement and making certain assessments against abutting property owners under statute providing for arterial highways was valid notwithstanding contention that larger benefited area as described by statute should have been assessed. *Brooks* v. *Meyers*, 279 S.W.2d 764 (Ky., May 20, 1955).

Bathtub Requirements in Dwellings Upheld

Health Commissioner's regulation requiring bathing facilities for each dwelling unit with exception of two-family units upheld as proper classification and not invalid as discriminatory in view of explanation that occupants of most two-family dwellings presumably exercised greater care in exercising of health precautions. *Givner* v. *Commissioner of Health of Baltimore*, 113 A.2d 899 (Md., May 12, 1955).

Building Code Requiring State Licensed Architects Only Submit Plans Upheld

Provisions of city building code that only architects licensed by state could prepare and submit plans and specifications for buildings or structures of public or semipublic nature were a reasonable exercise of city's police power. *Heron* v. *City of Denver*, 283 P.2d 647 (Colo., May 9, 1955).

City-Federal Liens—Priority Given to City

In mortgage foreclosure proceedings for determination of priority and judgment and distribution of funds to satisfy liens of City of New Britain and the United States and others, held, first priority given to city and where order of priority of liens was changed by supplemental judgment such judgment was not *res judicata*. *Brown* v. *General Laundry Service*, 19 Conn.Sup. 335, 113 A.2d 601 (Conn.Super. Ct., April 4, 1955).

City Vehicle—Damages Caused by Improperly Parked—City Liable

In action by plaintiff against city for damages to plaintiff's pickup truck resulting from collision with city truck parked in an underpass, held, evidence on location of truck and day's visibility was sufficient to support jury's finding that negligence of city employee was direct and proximate cause of injuries. *City of Amarillo* v. *Hill*, 278 S.W.2d 332 (Tex. Civ. App., March 15, 1954).

Eyeglass Advertisements—Ban On By City Void

Ordinance prohibiting advertising of price of prescription eyeglasses did not bear sufficient relationship to public health to constitute it a proper exercise of police power within powers of city. *Ritholz* v. *City of Salt Lake*, 284 P.2d 702 (Utah, May 27, 1955).

Filling Stations—Ordinance Limiting Tanks Upheld

In action to enjoin enforcement of ordinance limiting capacity of gasoline station storage tanks at service stations, held, where decree recited in effect that the gas station in question had not been opened for business until after adoption of the ordinance and oil company on appeal argued that trial court erred in not decreeing that the tanks were installed prior to the adoption of the ordinance, such decree was based on ground other than those urged and no basis existed for reversal. *Kendall Alabama Company* v. *City of Fort Payne*, 79 So.2d 801 (Ala., April 28, 1955).

Gambling—Ordinance on Possession Of Devices Invalid

Statute that defined gambling and authorized cities of 100,000 or more to prohibit did not authorize cities to make possession of gambling material paraphernalia a misdemeanor and ordinance doing so was an ultra vires action by city. *City of Lake Charles* v. *Theall*, 79 So.2d 739 (La., Nov. 8, 1954).

Incorporation—Enjoined Annexation Not Bar To

In proceeding to require County Recorder to record transcript of proceedings of Township Trustees relating to incorporation of Village of Blue Ash, held, that where City of Readings' annexation proceedings—including part of the same territory—had been permanently enjoined, village incorporation was valid and proceedings should be recorded. *State* v. *Ferris*, 126 N.E.2d 915 (Ohio, May 11, 1955).

Junk Yards—Ordinance Prohibiting Upheld

Where defendant salvaged and sold usable parts from old automobiles, which remained only temporarily on his lot, held, he was operating a prohibited junk or salvage yard within meaning of Anne Arundel County ordinance. *Laque* v. *State*, 113 A.2d 893 (Md., May 16, 1955).

Policemen—Law Requiring Retirement at Age 63 Valid

Where 240 New York City policemen brought action against the City of New York for declaratory judgment declaring invalid New York City local law providing for the automatic termination of office of members of the police force when they attained the age of 63 years if eligible for retirement on pension, held, evidence was insufficient to establish that law was indefinite, discriminatory, or contrary to public policy. *Humbeutel* v. *City of New York*, 126 N.E.2d 569 (N.Y., April 14,1955).

Street Cleaning—Trucks—Runaway Causing Damage

In action by building owners for damages to building caused by runaway truck owned by City, held, where truck watering city streets was under the complete control and management of agent city employee-driver and he was found lying disabled in street and truck was found at bottom of hill two blocks away where it had smashed into building, doctrine of *res ipsa loquitur* was applicable and city was liable. *McCloud* v. *City of La Follette*, 276 S.W.2d 763 (Tenn., June 30, 1954).

Tax Exemptions—Church Property Rented to Merchant—Denied

Where church purchased adjoining lot including two-story building and rented lower floor to merchant and used rents to retire purchase price of lot and planned to use entire building, when paid for, to house religious activities, held, property was not exempt from taxes. *City of Ashland* v. *Calvary Protestant Episcopal Church of Ashland*, 278 S.W.2d 708 (Ky., March 4, 1955).

"We save 8% to 15% on Construction costs with Amvit Jointed Clay Pipe"

Says John B. Kelly, President, C. & T. Affiliates, Inc.

"Amvit Jointed Vitrified Clay Pipe cuts costs and speeds construction," says John B. Kelly, President, C. & T. Affiliates, Inc. "We save from 8 to 15 percent on costs when we install Amvit Jointed Clay Pipe."

"The Amvit Joint is built in, ready for installation. Since no special preparations are needed, the line is laid quickly and easily. Immediate backfilling is possible."

City of Camden, N.J.

City Engineer
George Rogers

Assistant City Engineer
John Morgan

When the pipe is "pushed" together, the joint is in constant compression. Water cannot force its way in or out, thus preventing costly ground water infiltration or root penetration.

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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Wilson D. Coleman
Big Stone Gap, Va.

Charles R. Iovino
Randolph, Mass.

John M. Fredrickson
Milwaukee, Wis.

John W. Short
Berkley, Mich.

Frank D. Fargo
Davis, Calif.

ROBERT E. BAUMBERGER, city manager of Superior, Wis., was appointed city manager of Fort Pierce, Fla., succeeding Howard Stanton.

Old Town, Maine, has appointed JOHN P. BIBBER, manager of Berwick, Maine, to succeed Archer Scribner as city manager.

LEON BLACK was appointed city manager of Sallisaw, Okla., succeeding Chester F. Williams.

Limestone, Maine, has appointed BERNARD CAMERON, former state health and welfare employee, to succeed James V. Coyne as city manager.

HAL M. HILL, the former superintendent of utilities, was appointed city manager of Charlevoix, Mich., succeeding Roy R. Robinson.

Succeeding Alice McD. Strickland as city manager of Carolina Beach, N. C., is J. BOYD JONES.

Wickenburg, Ariz., has appointed the superintendent of Claremont, Calif., WILLIAM J. SALMON, to succeed R. B. Livengood as city manager.

J. J. SALOVAARA, director of the Pennsylvania Economy League at Pottsville, was appointed city manager of Albany, Ore., succeeding C. G. Reiter (dec.).

Winnsboro, S. C., has appointed HUGH N. THOMPSON, the director of public service at Chillicothe, Ohio, as its first city manager.

CHARLES H. TUCKER, manager of Calais, Maine, was appointed city manager of Madeira Beach, Fla., succeeding Erwin C. Brandon.

Succeeding George Meholick, Jr., as city manager of Negaunee, Mich., is EARL P. WAGNER, manager of Wayzata, Minn.

Huntington Woods, Mich., has appointed FRED L. YOCKEY, its assistant city manager, to succeed E. H. Waterhouse (retired) as manager.

CLARENCE E. RIDLEY, *Director*
International City Managers' Association

Regional Audit of Columbia, S. C.

RECOMMENDATIONS for the orderly economic development of the Columbia, S. C., area will be the end result of a special "regional audit" that started in mid-November under the direction of the American Institute of Management. The Institute, which is a nonprofit foundation, was formed in 1948 to undertake the study and improvement of corporate policies but recently has made extensive audits of noncommercial organizations. It is located at 125 East 38th St., New York 16, N. Y.

Categories to Be Evaluated

The research team of the Institute will evaluate the following categories in its Columbia audit:

1. ***Education.*** A study of both primary and secondary educational systems and facilities, as well as colleges, universities, professional, trade, and vocational schools.

2. ***Health and medical facilities.*** Their ability to meet current and projected needs.

3. ***Finance and banking.*** How these resources have been utilized in the economic development of the area, and future requirements for industrial development purposes.

4. ***Commerce and industry.*** Census of existing enterprises. Determination of types of commerce and industry best suited to the area.

5. ***Natural resources.*** Economic evaluation and estimates for commercial development of such resources as minerals, water, timber.

6. ***Social and cultural.*** Present employment in all classifications of commerce, industry, and agriculture. Analysis and breakdown of population growth and trends. The arts and sciences which form the cultural background of the area.

7. ***Transportation.*** Passenger and freight facilities and rates for both.

8. ***Government.*** Regional and local tax structures, public finance, and use of funds for area development.

9. ***Agriculture.*** Agricultural development of the area, including employment and income, land potentials, and crops.

10. ***Public utilities.*** Availability, rate structures, dependability of electric power and gas facilities, and their suitability to continued industrialization of the region.

The Annual Index
for 1955 has been bound into the December issue of the magazine. Additional copies of the Index may be obtained by addressing requests to the Circulation Department, 470 Fourth Ave., New York 16, N. Y.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Jan. 4-6—New York, N. Y.
NORTHEASTERN WEED CONTROL CONFERENCE. Annual Meeting (Hotel New Yorker). Exec. Sec., R. J. Aldrich, Chairman, Farm Crops Division, Rutgers University, New Brunswick, N. J.

Jan. 11-14—Miami Beach, Fla.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention featuring a Highway Materials and Supplies Exhibit (Municipal Auditorium). Exec. Vice-Pres., Gen. Eugene Reybold, World Center Bldg., Washington 6, D. C.

Jan. 16-20—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Convention (Sheraton-Park Hotel). Dir., Fred Burggraf, 2101 Constitution Ave., Washington, D. C.

***Jan. 17—New York, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Luncheon Meeting (Park Sheraton Hotel). Sec., Kimball Blanchard, Rensselaer Valve Co., 11 W. 42nd St., New York 36, N. Y.

Jan. 19-20—New York, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Statler Hotel). Exec. Sec., R. C. Sweeney, Regional Director Public Health Engineering, N. Y. State Department of Health, 21 N. Broadway, White Plains, N. Y.

Jan. 25-27—Los Angeles, Calif.
CALIFORNIA STREET AND HIGHWAY CONFERENCE sponsored by Institute of Transportation and Traffic Engineering. Annual Conference (U.C.L.A. campus; lodging headquarters at Hollywood-Roosevelt Hotel). Exec. Sec., Bob Glenn, Engineering and Extension Representative, ITTE, University of California, Berkeley, Calif.

Jan. 29-Feb. 2—Chicago, Ill.
ASSOCIATED EQUIPMENT DISTRIBUTORS, Annual Convention (Conrad Hilton Hotel). Exec. Sec., P. D. Hermann, 30 E. Cedar St., Chicago, Ill.

***Feb. 5-8—Washington, D. C.**
NATIONAL CITIZENS CONFERENCE. Annual Meeting of the American Planning and Civic Association (Statler Hotel). For further information write Miss Harlean James, Executive Secretary APCA, 901 Union Trust Bldg., Washington 5, D. C.

Feb. 7-9—Buffalo, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Hotel Statler). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 8-10—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Sheraton-Lincoln). Sec.-Treas., Robert J. Becker, 113 Monument Circle, Indianapolis 6, Ind.

Feb. 13-15—Cleveland, Ohio
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Convention (Hotel Cleveland). Sec.-Treas., Ward K. Parr, Box 376, 1224 E. Engineering Bldg., Ann Arbor, Mich.

Feb. 13-16—New York, N. Y.
ASSOCIATED GENERAL CONTRACTORS. Annual Meeting (Waldorf-Astoria). Managing Director, H. E. Foreman, 1227 Munsey Bldg., Washington 4, D. C.

Feb. 29-March 2—Boston, Mass.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Convention (Hotel Statler). Asst. Sec. and Treasurer, Kenneth D. Rice, 1035 Parkway Ave., Trenton, N. J.

March 6-10—Colorado Springs, Colo.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Broadmoor Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

March 7-9—Atlantic City, N. J.
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Convention (Chalfonte-Haddon Hall). Sec., Bailey B. Pepper, New Brunswick, N. J.

March 8-10—Washington, D. C.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Statler). Sec.-Treas., Miss Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

March 14-16—Atlantic City, N. J.
NEW JERSEY SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Traymore Hotel). Sec.-Treas., Michael S. Kachorsky, P. O. Box 66, Manville, N. J.

March 15-17—Lake Charles, La.
LOUISIANA MUNICIPAL ASSOCIATION. Annual Convention (Majestic Hotel). Sec.-Treas., Mrs. Douglas M. Warriner, 539 Reymond Bldg., Baton Rouge, La.

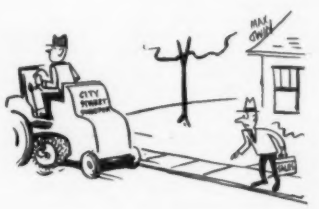
March 18-21—Augusta, Ga.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Bon Air Hotel). Sec.-Treas., N. M. deJarnette, Georgia Department of Public Health, 245 State Office Bldg., Atlanta, Ga.

March 18-24—Washington, D. C.
AMERICAN CONGRESS ON SURVEYING AND MAPPING jointly with American Society of Photogrammetry. Annual Convention (Shoreham Hotel). For further information write ACSM-ASP, Box 470, Washington 4, D. C.

***March 19-21—Little Rock, Ark.**
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Meeting (Hotel Marion). Sec., Harrison Hale, Southern State College, Magnolia, Ark.

***March 21-23—Chicago, Ill.**
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (LaSalle Hotel). Sec., D. W. Johnson, Cast Iron Pipe Research Association, 122 S. Michigan Ave., Chicago 3, Ill.

March 26-30—Amherst, Mass.
ADVANCE SEWAGE TREATMENT WORKS OPERATORS SHORT COURSE. Sponsored by Massachusetts Department of Public Health, The New England Field Training Center and The University of Massachusetts. For information address Mr. C. I. Sterling, Jr., Department of Public Health, 511 State House, Boston 33, Mass.



***April 2-5—Lafayette, Ind.**
PURDUE ROAD SCHOOL. 42nd Annual School (Union Building, Purdue University). Exec. Sec., Ben H. Petty, Professor of Highway Engineering, CE Bldg., Purdue University, Lafayette, Ind.

***April 3-5—Philadelphia, Pa.**
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Bellevue-Stratford Hotel). Sec., L. S. Morgan, State Department of Health, Greensburg, Pa.

***April 4-6—Topeka, Kans.**
AMERICAN WATER WORKS ASSOCIATION—Kansas Section. Annual Meeting (Jayhawk Hotel). Sec., H. W. Badley, Neptune Meter Co., 119 W. Cloud St., Salina, Kans.

April 5-6—Chapel Hill, N. C.
FIFTH SOUTHERN MUNICIPAL AND INDUSTRIAL WASTE CONFERENCE (Carolina Inn). For information address Daniel A. Okun, Department of Sanitary Engineering, School of Public Health, University of North Carolina, Chapel Hill, N. C.

***April 5-7—Safford, Ariz.**
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Meeting Sec., Quentin M. Mees, Arizona Sewage and Water Works Association, 721 N. Olsen Ave., Tucson, Ariz.

***April 6-7—Livingston, Mont.**
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Murray Hotel). Sec., A. W. Clarkson, State Board of Health, Helena, Mont.

***April 11-13—Lincoln, Nebr.**
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., J. E. Olsson, Fulton & Cramer, 922 Trust Bldg., Lincoln, Nebr.

***April 18-20—Utica, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. (Hotel Utica). Sec., Kimball Blanchard, Rensselaer Valve Co., 11 W. 42nd St., New York 36, N. Y.

***April 23-25—London, Ontario**
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting. (Hotel London). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ontario, Canada.

May 6-11—St. Louis, Mo.
AMERICAN WATER WORKS ASSOCIATION. Diamond Jubilee Conference. Sec., Harry E. Jordan, 521 Fifth Ave., New York, N. Y.

May 7-9—Providence, R. I.
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Sheraton-Biltmore). Exec. Dir., Perry L. Norton, 34 Brattle St., Cambridge 38, Mass.

***May 10-11—Yakima, Wash.**
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Chinook Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

May 21-24—Buffalo, N. Y.
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Statler Hotel). Exec. Sec., H. C. Ballman, 4400 Fifth Ave., Pittsburgh 13, Pa.

May 22-25—New Orleans, La.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (Roosevelt Hotel). Pres., Arthur J. Shinners, Brookline 47, Mass.

***June 3-7—Washington, D. C.**
MUNICIPAL FINANCE OFFICERS' ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Statler Hotel). Exec-Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

Municipal & Civic Publications

The publications on these pages are available from the addresses indicated in each listing.

Trends in Zoning and Planning Legislation

REPORT OF COMMITTEE ON ZONING & PLANNING—*By Fred G. Stickel, III, to National Institute of Municipal Law Officers. Available from the author at 571 Pompton Ave., Cedar Grove, N. J.* 1955. 16 *pp.*

Mr. Stickel, counsel of Roseland, N. J., made this report at the 20th Annual Conference of NIMLO, as Chairman of the Institute's Committee on Zoning and Planning. In it he reviewed briefly the most important recent decisions and materials on zoning and planning. He concluded that there is an increase in use of subdivision control, that more communities will adopt master plans, that aesthetics of zoning will develop but slowly, that suburban communities will attempt to attract research laboratories and administrative offices of industries, that affirmative zoning will gradually replace the negative approach, that more effective means to end nonconforming uses will be found, that single-purpose zoning will increase, that more minimum-size dwelling requirements will be enacted, that courts will support as constitutional the exclusion of residential use for industrial zones.

Hiring Your Staff

HOW TO HIRE OFFICE PERSONNEL—*By Howard G. Martin. Martin Publishing Company, P. O. Box* 2016, *San Diego* 12, *Calif.* 1955. *Leaflet. Single copy free.*

For a novice in hiring office personnel, this leaflet will have many helpful suggestions. It tells briefly how to recruit, screen, test, and interview applicants, and how to check their references.

Preserving Sites for Industries

WANTED: SITES FOR INDUSTRIES—*By Robert B. Garrabrant. October* 1955 *issue of* Urban Land. *Published by Urban Land Institute,* 1737 *K St. NW., Washington* 6, *D. C.* 6 *pp.* $1.

Mr. Garrabrant points out that because of the expected need for additional industrial plants to supply goods for our growing population and because of the greater amount of space required by modern factories, it would be well for cities to take inventory of the level, firm, well-located land they have available for industrial development. If the reserve of land is inadequate, he urges that new sites be developed within the community's orbit to protect the city's economic health and future development.

Memorial Auditorium

PEACE MEMORIAL AUDITORIUM AND CITY OFFICES. *Report No.* 55-5, *City of Manhattan, Kans.* 1955. 67 *mimeo. pp.*

This is an exceptionally complete report describing the planning of the combined city offices and city auditorium of Manhattan, Kans. Data on the various facilities in the building, from equipment to square footage of area, are described in detail. Photographs and diagrams are included. Officials considering new municipal halls in small cities will find this to be a useful document.

A Bargain in Water

WATER—*Government Printing Office, Superintendent of Documents, Washington, D. C.* 1955. 751 *pp.* $2.

Probably the best bargain in semi-technical books available to a man who has an interest in water supply and usage.

The supply and disposal of water in a municipality occupies a small part of the book, and properly so, since of the 4,300 billion gallons of water that fall on our land by rainfall, only about 15 billion gallons are used for public water supplies. About 70 billion are used by industry, and about 95 billion are used by agriculture for irrigation.

The book was prepared by the Agriculture Department as its 1955 Yearbook, following a policy of devoting each annual volume to a thorough discussion of a single subject. It is prepared in nontechnical style, with the text written by 149 selected specialists. It presents discussions of droughts, floods and normal uses of water; of weather modification or cloud seeding; desalting of sea water; care of water sheds; water laws; floods and their prevention; sewage treatment, and many other subjects. Harry Jordan, secretary of the American Water Works Association, and Ralph Furman, secretary of the Federation of Sewage and Industrial Wastes Associations, are both contributors.

Planning Bibliography

SELECTED REFERENCES ON URBAN PLANNING METHODS AND TECHNIQUES (*Revised June,* 1955)—*University of North Carolina.* 27 *pp. mimeo.* $2. *Checks should be made payable to Patricia Baber, Box* 1290, *Chapel Hill, N. C.*

Urban economy, population studies, land use surveys and planning, thoroughfare planning, parking analyses, transit and other transportation, school plants, recreation areas, residential, business, shopping, industrial and commercial districts, utilities, special purposes, and the comprehensive plan—are the general categories under which the references are listed.

For an Effective Annual Report

THE ANNUAL CITY REPORT—*Why and How —By Murdock Martin. Bureau of Governmental Research and Service, School of Public Administration, Florida State University, Tallahassee, Fla. Studies in Government No.* 15. 1955. 15 *mimeo pp.*

Although this work is designed to help government officials and others connected with municipal government throughout Florida make better use of the annual report—an increasingly effective public relations tool for informing the voter about and gaining his confidence in his city government—it will be of value to all involved with annual reporting.

Reasons for publishing an annual report, what such a report should cover, and three types of reports—tabloid, booklet, mimeographed—are gone into. Costs are discussed also. The "how to" section and the "do's and don'ts" of preparing a report, if heeded, will help you steer clear of common pitfalls in annual reporting.

For those interested in additional aids a short bibliography has been included.

The White House Conference on Education

THE SCHOOL EXECUTIVE—*January issue.* 468 *Fourth Ave., New York* 16, *N. Y.* $1. *for the special January Reference Issue.*

Readers interested in problems of education will find the important White House Conference described in two excellent stories in the January issue of *The School Executive.*

For complete reports of the topics, "How Can We Finance Our Schools—Build and Operate Them?" and "What Are Our School Building Needs," it is suggested that readers address Mr. Clint Pace, Director, Committee for the White House Conference on Education, Health Education and Welfare Building South, Washington 25, D. C.

Digests of Hoover Commission Reports

DIGESTS AND ANALYSIS OF THE NINETEEN HOOVER COMMISSION REPORTS—*Citizens Committee for the Hoover Report,* 777 *Fourteenth St., N.W., Washington* 5, *D. C. or* 441 *Lexington Ave., New York* 17. 1955. 252 *pp.* $1.50.

The background facts, major findings and recommendations, and importance of each of the following reports are summarized in this volume: Personnel and Civil Service; Paperwork Management—Part I; Federal Medical Services; Lending Agencies; Transportation; Legal Services and Procedure; Surplus Property; Food and Clothing; Business Enterprises; Depot Utilization; Research Development; Overseas Economic Operations; Real Property Management; Budget and Accounting; Business Organization of the Department of Defense; Intelligence Activities; Water Resources and Power; Paperwork Management—Part II; Final Report to the Congress. These digests may also be purchased separately at 10c each.

Management Information Service Bulletins

Published by the International City Managers' Association, 1313 *E. 60th St., Chicago* 37, *Ill. Available to subscribers for Management Information Service.*

THE COSTS OF EMPLOYEE FRINGE BENEFITS—*Report No.* 140. *Sept.* 1955. 8 *pp.*

Limiting the discussion of fringe benefits to direct and indirect remuneration beyond wages and salaries received by municipal employees, this report shows the types of benefits that may be considered and how the cost can be measured. Most common of the benefits discussed are vacations and leaves, holidays, pension plans, and workmen's compensation. Group insurance, overtime pay, uniform allowances, leaves of absence, rest periods, are others less common.

PREPARATION OF THE CAPITAL BUDGET—*Report No.* 141. *Oct.* 1955. 10 *pp.*

The planning, scheduling, and financing of physical improvements such as streets, bridges, sewers, parks, and buildings—in other words, the capital budget—calls for estimates, project reviews, and integration with the annual operating budget. This report is concerned with the steps by which this may best be done.

No. 4* of 12 REASONS WHY
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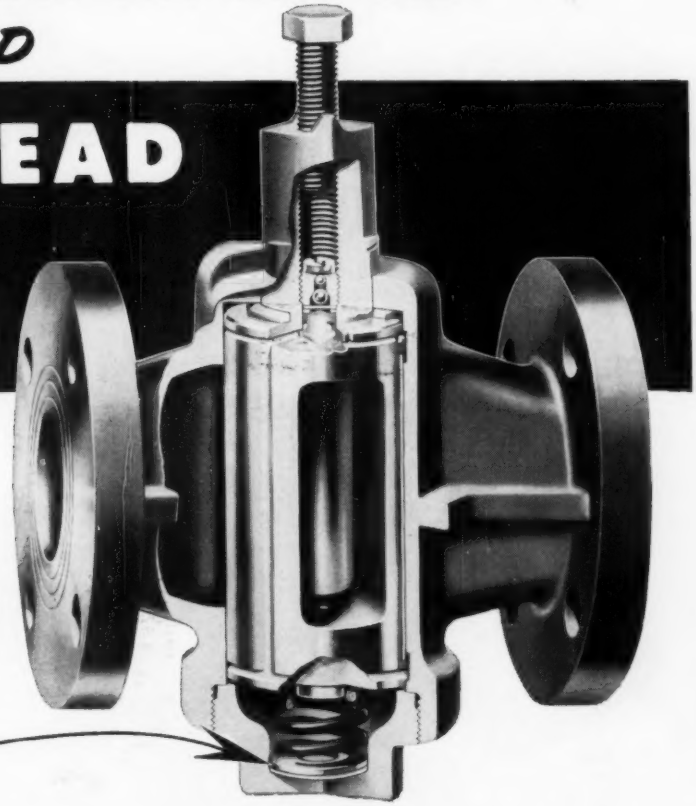

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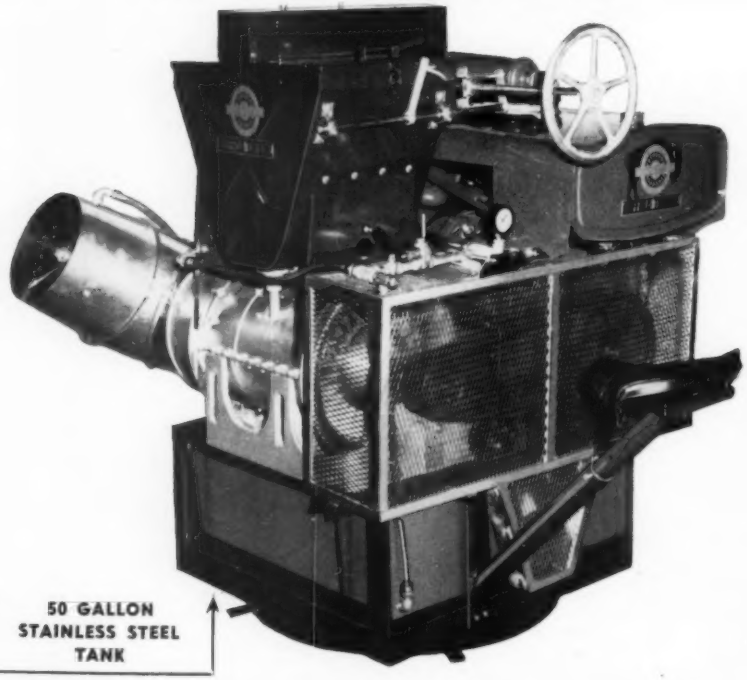

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State of California
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State of Washington
State of Pennsylvania
State of Minnesota
State of Texas
State of Delaware
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State of South Carolina
State of Massachusetts
*Dade County Florida
East Volusia County Florida
Manatee County Florida
Okaloosa County Florida
Bay County Florida
Chester County S. C.
DeKalb County Georgia
Barwell County N. C.
*City of Atlanta, Georgia
*City of New Orleans, La.
*City of Galveston, Texas
*City of Columbia, S. C.
*City of Wilmington, N. C.
*City of Washington, D. C.
*City of Nashville, Tenn.
City of Buffalo, N. Y.
City of Rochester, N. Y.
City of Richmond, Va.
City of Gloucester, Mass.
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City of Lakeland, Florida
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GOWANDA **NEW YORK, U. S. A.**

The Challenge of Leadership

LEADERSHIP IN LOCAL GOVERNMENT, *First Annual Wherrett Lecture on Local Government—By Stephen K. Bailey. Institute of Local Government, University of Pittsburgh, Pa.* 12 *pp.* 1955. $1.

An inspirational talk that tells local government officials what they should aim for in community betterment; how they can coordinate their resources (such as intelligent citizens, capital, state and federal aid); and what their obligations are as leaders, the greatest in the author's opinion being vision.

On Renewing a Walled City

A REPORT ON THE RENEWAL POSSIBILITIES OF THE HISTORIC TRIANGLE OF THE CITY OF SAN JUAN—*By Nathaniel S. Keith & Carl Feiss, 730 Jackson Place NW., Washington 6, D. C. May* 1955. 64 *pp.*

Messrs. Keith and Feiss acting as consultants to the Municipal Housing Authority of the Capital of Puerto Rico herein analyze the present conditions of the Historic Triangle (i.e. San Juan Antiguo and its immediate vicinity) and give their recommendations for its improvement through slum clearance and restoration of historic and other values. The restoration of San Juan Antiguo, one of the few walled cities of the Western Hemisphere, offers an opportunity for the creation of tremendous values to the entire commonwealth of Puerto Rico. A six-year effort is envisioned in this preliminary report.

Colorado County Budgeting

COUNTY BUDGET PROCEDURE AND PREPARATION COLORADO—*Colorado Public Expenditure Council, 1765 Sherman St., Denver 5, Colo. July* 1955. 22 *mimeo pp.*

Prepared at the request and with the approval of the Colorado Tax Commission, this booklet tells about budget preparation, adoption, and administration, and about the use of county budget forms. It also describes important laws relating to tax levies in Colorado counties.

Plan for Hoboken

HOBOKEN MASTER PLAN REPORTS. *Prepared for the Planning Board of the City of Hoboken, N. J., by Isadore Candeub, 359 So. Orange Ave., Newark 3, N. J., from whom copies are available at* $3.50 *per set of* 6. 1954-1955.

BACKGROUND ANALYSIS — 13 *pp. plus charts and maps*

LAND USE ANALYSIS—11 *pp. plus charts and maps*

POPULATION ANALYSIS—14 *pp. plus charts and maps*

HOUSING ANALYSIS—13 *pp. plus charts and maps*

HOUSING AND REDEVELOPMENT PLAN—12 *pp. plus charts and maps*

ECONOMIC BASE ANALYSIS—38 *pp. plus charts and maps.*

The first six of the proposed 14 reports are mainly concerned with the analysis of pertinent data, although the planning stage has been reached in the housing and redevelopment plan report. After the completion of the master plan, a schedule and capital improvement budget will be presented and various suggestions made for implementing the plan.

Planning to Avoid Floods

FLOOD PROBLEMS AND THEIR SOLUTION THROUGH URBAN PLANNING PROGRAMS—*By Robert Wilson Siler, Jr. Tennessee State Planning Commission, Cordell Hull Bldg., Nashville 3, Tenn.,* 48 *pp.* 1955. $1. (*Publication No.* 262)

The recent severe floods have focused attention on the necessity of reducing or preventing the resulting damage. This study considers a comprehensive program looking toward rational land use so that the needs of the locality as well as the needs of the river for passing its flood waters can be reasonably satisfied. It will help those interested in guiding urban growth into desirable patterns through flood plain zoning, subdivision regulations, and the design and location of streets, utilities, and public buildings.

Italian Architecture

ITALY BUILDS—*By G. E. Kidder Smith, Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.* 1955. 264 *pp.* $10.

Architects, planners, and other lovers of fine buildings will appreciate this beautiful book. It is the third in a series on European architecture by Mr. Smith, the other two being *Switzerland Builds* and *Sweden Builds.*

The text, written in both English and Italian, is accompanied by fine photographs bearing out the author's thesis that Italy knows how to integrate her monumental past and her handsome new buildings. The first part of the book shows how native architecture has been influenced by climate and site, by ancient squares, by water, and by various levels of land. The rise of Italy's modern architecture is then described and outstanding examples are given of new housing, health centers, memorials, museums, shops, markets and exhibition halls, and industrial plants.

Perhaps American cities with their recently constructed slums may find in Italian cities that have been beautiful for two thousand years some hints on how to attain and preserve a combined utility and good looks.

For Intergroup Harmony

A MANUAL OF INTERGROUP RELATIONS—*By John P. Dean and Alex Rosen. The University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill.* 1955. 193 pp. $3.75.

This practical guide for workers in intergroup relations and for those actively engaged in reducing segregation and discrimination presents in concise detail the principles of sound day-to-day practice in a delicate area. The accumulated experience of administrators and practitioners has gradually shown what makes one situation explosive and another harmonious and has provided rough rules of thumb to guide intergroup practices. The aim of the authors has been to set these principles in clear perspective and to discuss their implications.

The Annual Index
for 1955 has been bound into the December issue of the magazine. Additional copies of the Index may be obtained by addressing requests to the Circulation Department, 470 Fourth Ave., New York 16, N. Y.

The Latest in Architectural Engineering

ARCHITECTURAL ENGINEERING: *New Concepts, New Methods, New Materials, New Applications—By the Editors of* Architectural Record, 119 *West 40th St., New York 18, N. Y.* 1955. 500 *pp.* $11.50.

This fat and impressive book is a compendium of current information on the latest techniques in building engineering. In the coming years of rapid city growth —bringing with it the need for all types of municipal buildings and facilities—this can be a handy reference volume for city engineers and other local officials involved in development decisions.

Bibliography on Education In Community Development

AIDS TO THE STUDY OF THE ROLE OF ADULT EDUCATION IN COMMUNITY DEVELOPMENT —*Adult Education Association,* 743 *North Wabash Ave., Chicago* 11, *Ill.* 1955. 5 *mimeo. pp. Limited supply free.*

This bibliography lists outstanding recent works in the field of education for community development and gives a brief summary of the contents. Author, publisher, date, length, and price are also given.

Austin's Master Plan

THE AUSTIN MASTER PLAN PROGRAM. *Report No.* 1. *Program Statement. June* 1955. 22 *pp. Report No.* 2. *Research Program. July* 1955. 23 *pp.*
Prepared by Harold F. Wise Associates, for the Austin City Planning Commission, Austin, Texas.

These two artistically prepared booklets explain why and how a master plan is being prepared for Austin, Texas, the capital city of the expansive state. The booklets are unique in the amount of space and coverage that they devote to the why's and wherefore's of preparing a plan for a specific city. These publications look like fine primers for most lay commissioners who are about to embark on a detailed master planning program with the aid of a well-trained staff or with a consultant.

Coordinating Education And Other Services

THE PUBLIC SCHOOL AND OTHER COMMUNITY SERVICES, *November* 1955 *issue of* The Annals. *Published by The American Academy of Political and Social Science, 3937 Chestnut St., Philadelphia 4, Pa.* 215 *pp.* $2.

"With the increase in the number of agencies concerned with children and youth, and with the growing size and complexity of schools, school systems, and other services, the problem of co-ordination of effort emerges," says Theodore L. Reller in his foreword to this issue. To such questions as how this coordination can be effected; what changes in policy, structure, and organization are needed; how to eliminate the conflict among services; levels of public opinion and action; this issue of authoritative articles is dedicated.

Planning, housing, recreation, public health, social welfare, the public library, delinquency control, and occupational education are discussed in their relationship to education in the United States. There follows a section on similar problems in Europe.

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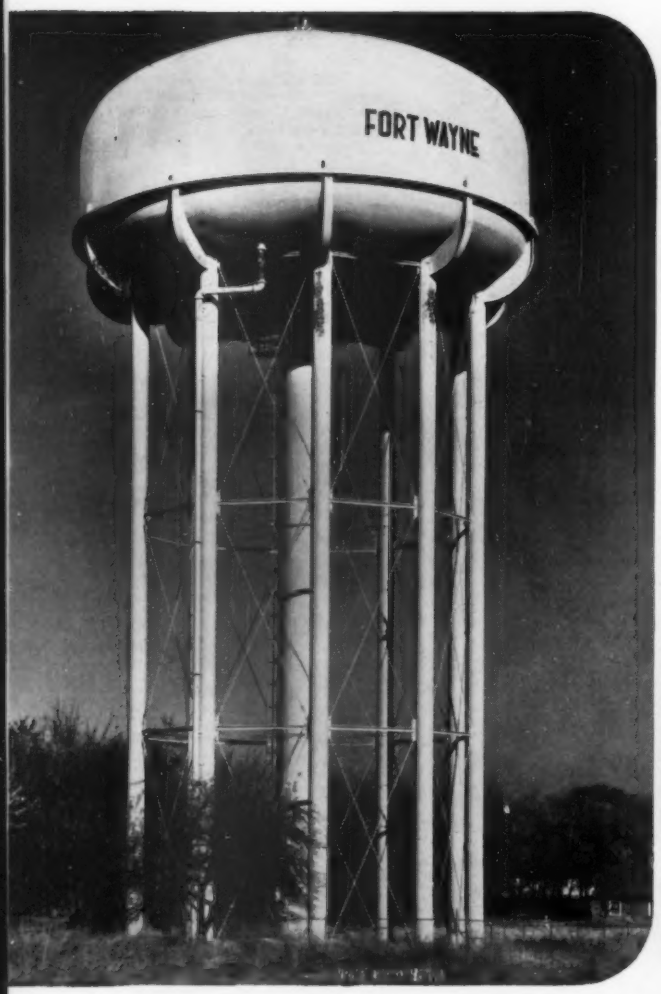

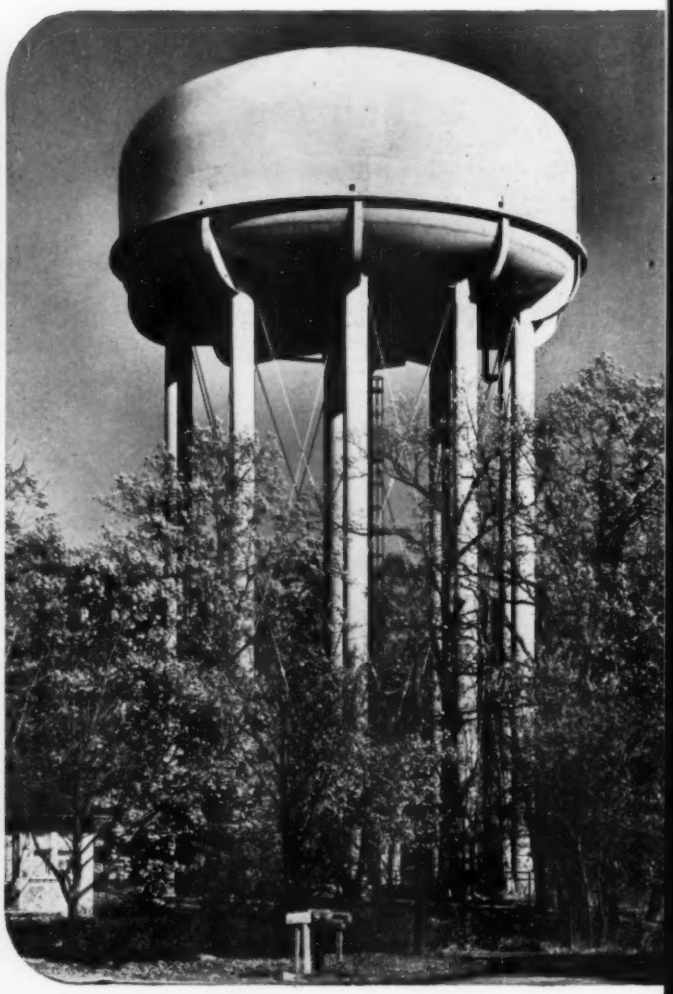

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DALLAS (1),.....1217 Praetorian Building
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Recreation Areas for Binghamton

COMMUNITY FACILITIES PLAN FOR BINGHAMTON, N. Y.—*General Plan Report No. 9. Broome County Planning Board, 209 County Court House, Binghamton, N. Y.* 1955. 33 *pp.* 50 *cents.*

A comprehensive analysis of the existing recreational facilities in Binghamton forms the basis for the recommendations for new and improved recreation areas. The city is broken down into 11 residential neighborhoods, and the data, statistics, and projections are based upon the neighborhood unit. The Planning Board feels that some sections of the city are seriously deficient in adequate playground areas.

A Defense of the Merit System

THE MERIT SYSTEM—AN ESSENTIAL OF GOOD GOVERNMENT — *By Murray Seasongood. Reprinted from the Vanderbilt Law Review, Vanderbilt University Press, Nashville, Tenn.* 1955. 15 *pp.*

Although federal Civil Service became law in 1883, there is still, says Professor Seasongood, nothing approaching genuine civil service in about half the states of the Union. He describes in this article various methods by which the merit system is circumvented, and tells of some of the common political objections to the merit system — refuting each objection as he mentions it.

Other Reports Received

Air Pollution

LOS ANGELES, CALIF.—First Report of Air Pollution Studies. Department of Engineering, University of California, Los Angeles, Calif. July 1955. Report 55-27. Illus. Graphs. Maps. Charts. Tables.

NEW YORK, N. Y.—Annual Report 1954. Department of Air Pollution Control, 15 Park Row, New York 38, N. Y. Illus. 22 pp.

Annual Reports

HAMILTON, OHIO—This Is Your City. Presented by Mayor Arthur J. Fiehrer and City Manager Charles F. Schwalm. Illus. Unpaged.

HUNTINGTON PARK, CALIF. — Forty-Ninth Annual Report. Reported by Agnes R. Platt, City Clerk, Huntington Park, Calif. Illus. Tables. 36 pp.

Government and Administration

ENGLEWOOD, N. J.—Your Municipal Government. Annual Report of The Mayor and Common Council for 1954. City of Englewood, N. J. Illus.

DURHAM, N. C.—Facts and Milestones. Issued April 25, 1955. Available from R. W. Flack, City Manager, Durham, N. C. 34 pp.

Finance and Taxation

ALLEGHENY COUNTY, PA.—1955 Supplement to The Survey of Wage and Salary Programs in the Municipalities of Allegheny County. Institute of Local Government, University of Pittsburgh, Pittsburgh 13, Pa. November 1955. Tables. 38 pp.

GENERAL—Special Convention Issue. *The Daily Bond Buyer,* 67 Pearl St., New York, N. Y. Illus. Tables. 114 pp.

Industry and the Community

DANVILLE, KY.—Industrial Resources. Prepared by Danville Chamber of Commerce and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky. July 1, 1955. Illus. Maps. 16 pp. plus appendices. $2.

MORGANFIELD, KY. — Industrial Resources. Prepared by The Morganfield Chamber of Commerce and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky. July 1955. Maps. 15 pp. Appendices. $2.

RICHMOND, KY.—Industrial Resources. Prepared by The Richmond Board of Trade and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky. August 1955. Map. 16 pp. plus appendices. $2.

UNIONTOWN, KY. — Industrial Resources. Prepared by the Uniontown Boosters Club and The Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky. June 1955. Map. 15 pp. plus appendices. $2.

Parks and Playgrounds

PHOENIX, ARIZ.—"Double Duty Dollars" for Recreation. 1954-1955 Annual Report. Available from Parks and Recreation Department, City of Phoenix, Ariz. Illus. Brochure.

VIRGIN ISLANDS—Proposed Virgin Islands National Park. Prepared by National Park Service, United States Department of the Interior, C Street between Eighteenth and Nineteenth Streets, NW., Washington, D. C. Illus. 15 pp.

Planning, Housing and Zoning

BERKELEY, CALIF.—Planning Progress 1954-1955. Planning Commission, Berkeley, Calif. 10 pp. Map.

BRAWLEY, CALIF.—Annual Report of the Housing Authority of the City of Brawley, Imperial County, P. O. Box 37, 1401 D St., Brawley, Calif. Tables. Mimeo.

PHILADELPHIA, PA. — Public Information Bulletin. September 1955 No. 6-C. Philadelphia City Planning Commission, Market Street National Bank Bldg., Market and Juniper Sts., Philadelphia 7, Pa. Tables. Maps. 31 pp.

SACRAMENTO, CALIF.—Annual Report 1954-1955. Submitted by Victor J. La Chapelle, Chairman, City Planning Commission, Room 308, City Hall, Sacramento, Calif. 12 pp.

ST. LOUIS, MO.—Plaza Redevelopment Project. Published by The Land Clearance for Redevelopment Authority, St. Louis, Mo. June 1955. Illus. Tables.

Public Works

NEWTON, MASS.—Annual Report. Public Works Department, Newton, Mass. Graphs. Tables.

Schools

GENERAL—A Study of Baltimore's Public School Building Program. By the Commission on Governmental Efficiency and Economy, Inc., Mercantile Trust Bldg., Baltimore 2, Md. 49 pp.

Street Cleaning

TORONTO, CANADA—Annual Report of the Street Commissioner for the City. For the year ending December 31, 1954. Illus. Tables. 56 pp.

Water Supply and Treatment

HONOLULU, HAWAII — Growth of SWS*/ *Suburban Water System, Department of Public Works, City and County of Honolulu, Hawaii. Illus. Tables.

NEW YORK, N. Y.—Forty-Ninth Annual Report of the Board of Water Supply. Submitted by Commissioners of the Board of Water Supply, Board of Water Supply, 120 Wall St., New York 5, N. Y. Tables. Maps. 142 pp.

GENERAL—7th Annual Report of interstate pollution control to the Governors of Illinois, Indiana, Kentucky, Ohio, New York, Pennsylvania, Virginia, West Virginia. Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2, Ohio. Illus. Maps.

Where's That Document?

(Continued from page 123)

City Clerk, it is checked by the Right of Way Department. Then it comes to the City Clerk.

The deed is assigned the next consecutive number and is recorded on a Register Card which gives deed number, name of grantor, purpose, property location, and the date accepted.

Next, two buff-colored Chaindex cards are typed. One carries the grantor's name, the other the property's location (here, the deed's legal description is translated into a street address).

These Chaindex cards are properly interfiled in the Master Index (under grantor's name and the property's address). The register card posted, the deed is filed in a folder in one of the Deed drawers (the folder numbered and color-coded crimson). One would be filed under "Smith, Joe and Doris"; the other, under "Hamilton Road." Both would be notated "D-306," indicating the file folder where the deed, along with other associated information, is located.

Essentially, the same system (though file folders and Chaindex cards are differently color-coded) applies to our other documental classes.

Ordinances

During 1952, Las Vegas' City Council passed 35 ordinances; in 1953 the number was 67. In the Master Index, ordinance cards are color-coded green, as are their file folder labels. All ordinances are double-indexed in the Master under number and subject.

4 PROVEN FELKER CONCRETE CUTTERS

for dependable concrete maintenance and repair

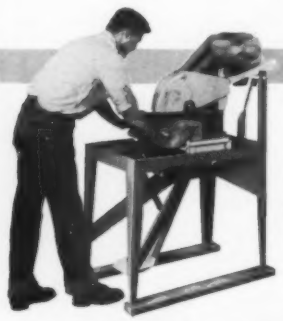
Felker Concrete Cutters combine all requirements for rugged service and fast cutting at lowest cost per foot! Built for low maintenance, and easy, dependable operation. Excellent maneuverability in all models with a complete range of sizes from low cost budget-priced machines to powerful heavy-duty machines for highway and airport applications. All models are equipped with exclusive Blade-Saver Collars insuring extra blade life. Hydraulic lift and retardant provide velvet smooth control on blade depth. Built by the *ONLY* manufacturer who makes both concrete cutting machines and diamond abrasive blades! Proved in use on major construction projects throughout the nation.

1 **FELKER MODEL 100**—A low priced concrete cutter for patchwork and light cutting. Light, exceptionally maneuverable. 7.5 hp Wisconsin drives 8" through 12" blades. Right or left hand operation with double end spindle.

2 **FELKER MODEL 200**—13.5 hp Wisconsin engine drives 10" through 14" blades. Equipped with **power drive** which removes physical effort, cuts more footage and extends blade life. Includes auxiliary coolant pump assembly.

3 **FELKER MODEL 254**—A heavy duty machine powered by a 25 hp Wisconsin engine. Perfect balance . . . tilts on front or rear wheels for quick maneuverability. Uses 14" diamond wheels or 18" wheels with special guard. Instant acting pump clutch saves wear, automatically shuts off water when pump is disengaged.

4 **FELKER MODEL 364**—Identical to the Model 254 but equipped with a 36 hp Wisconsin engine for extra heavy duty operation.



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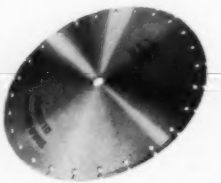

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Kiddielands in Zoos Become Popular

GOING to the zoo has become a more popular pastime for youngsters in cities and towns where amusement rides have been combined with animal exhibits in specially designed kiddieland areas. Among the growing number of cities that have included rides in their children's zoos are Chicago, Ill.; Columbus, Ohio; Fresno, Calif.; Roanoke, Va.; and Rochester, N. Y. Not only do the special children's facilities popularize the zoological parks for youngsters, but they have proved to be profitable. Chicago's Lincoln Park Zoo, one of the nation's best animal parks, reports that its kiddie train ride has grossed as much as $43,000 in one year of operation. The ride has become so popular that Marlin Perkins, zoo director, reports that he would like to use the train for actual transportation of visitors from one part of the zoo which has an annual attendance of 4,000,000.

Columbus Zoo

The children's zoo at the Columbus, Ohio, zoological park is one of the newest examples of a special kiddie area with accompanying rides. It consists of a circular tract large enough to hold six kiddie rides, a concession house, and many zoological exhibits designed especially for children.

Everything was "planned to make the children feel that it is their place," as a zoo official put it. The entrance to the special tract is of such a size that children can pass through standing but adults have to crouch. There are six rides—all of which are scaled to the kind of amusement children like best. The Allan Herschell Co., of North Tonawanda, N. Y., supplied four of them —the Boat, the Buggy, the Auto, and the Jolly Caterpillar. In addition there is also a kiddie merry-go-round and a kiddie airplane ride. Total cost of the kiddieland rides was $50,000.

The specially designed animal exhibits follow the trend of including gentle domestic animals rather than ferocious creatures that frequently scare tots. For instance, there is a mother turtle that is 12 inches across with a lot of baby turtles that are only 2 or 3 inches across. Another exhibit has a 3-foot alligator with several babies 6 inches long. There are also rabbits, goats, and chickens.

The decision to build the new kiddieland followed the zoo commission's success in operating a miniature train at the zoo during 1953 and 1954. Net profit from the train during that period amount to $32,000. Sid R. Phillips, chairman of the Columbus Zoo Commission reports that all profits from the new kiddieland are to be used to buy animals and to make other improvements at the zoo.

The new kiddie zoo is blacktopped, decorated, and well illuminated for night operation. Benches and shade trees have been placed throughout the area for the convenience of the daytime patrons. Although the Columbus Zoo and its new kiddie area are located 17 miles north of the city in the town of Dublin, people come out here by the thousands a zoo official explains.

Rochester Zoo

A somewhat different operating approach to the kiddie zoo and playland development is offered at Seneca Park in Rochester, N. Y., where the kiddie zoo and the children's rides are in separate but adjoining tracts.

The zoo is also operated on the theory that what really pleases kids most is not big roaring animals but the tame and mild domestic variety such as goats, pigs, lamb, calves, and horses. Every day at four in the afternoon, the children are invited to come and feed the youngest animals with special bottles that the zoo has ready for them. There is also a daily seal and elephant show for the kids. On days when school buses come into the park, the number of shows is stepped up considerably.

The kiddie amusement-ride area which is operated by Mrs. Betty Buckler, is next door to the kiddie zoo. She has operated it for four years with great success from an opening date each year at Easter to a closing date sometime in October. All the rides have a nine cents charge, and all are manufactured by the Allan Herschell Co., of North Tonowanda, N. Y.

Brackenridge's New Power Plant

(Continued from page 115)

the city mains and is softened and treated before use. It is circulated through each engine by a built-in, engine-driven pump, which sends it through one of two horizontal Young radiators, through the lube-oil cooler, and then back to the engine.

Scavenging air for each of the two-cycle engines, drawn from the outside through an oil-bath type of filter on the lower roof of the plant and through a silencing elbow, is supplied to the cylinders by a built-in, positive-displacement type blower, which is driven off the upper crankshaft. Starting air is supplied at a pressure of 250 pounds by two reciprocating compressors, one driven by a 7½-hp motor and the other used in emergencies, by a 4-cylinder Waukesha gasoline engine. It is stored in three 20-inch by 72-inch receivers.

Also mounted on the lower roof of the plant are three side-inlet, vertical exhaust snubbers serving the three engines. All exhaust lines are fitted with flexible metal hose to reduce vibration, as are all air intake, gas, lube, pilot oil, and water lines.

At the control end of each engine is a compactly arranged gauge board, containing pressure gauges on scavenging air, starting air, and duplex pressure gauges on gas, lube-oil filter, and lube-oil strainer. There are both gauges and a 24-hour recording meter on lube and jacket water temperatures. Also installed on the board are an alarm panel, with visible and audible alarms on jacket-water pressure and temperature and lube-oil pressure and temperature; a multipoint Alnor exhaust pyrometer, and a Lake Shore control switch for the respective 50-gpm prelubrication pumps.

To provide for economical heating, a motor-driven booster pump circulates warm jacket water through three unit heaters.

The Breckenridge Electric and Water Department has always contributed substantially to the borough's general fund, thereby helping to keep taxes down. In the last five years, for example, when it was still purchasing power at the rate of 12 mills per kwhr, it returned an average of over $35,000 per year, substantially more than any tax contribution.

Plant operation is the responsibility of Louis Affrica, superintendent of electricity and water.

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Brighter V-Beam is the only long-life traffic lamp that meets or exceeds beam intensity standards set by the Institute of Traffic Engineers. Increase highway safety, decrease costly maintenance with 4000 hour V-Beam in 40, 60, 100 and 150 watt. Also 6000 hour 67 watt.

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Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Improved TraveLoader Is Easy to Operate

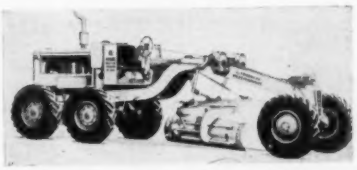
The ADAMS DIVISION OF LETOURNEAU-WESTINGHOUSE CO., INDIANAPOLIS, IND., announces an improved version of the popular, self-propelled, belt-type TraveLoader. The machine, designed for loading all types of loose material into trucks from either windrows or stockpiles, is now available with a rocker-type foot pedal operating an over-center clutch. This pedal controls the starting and stopping of the TraveLoader. You simply rock the pedal forward to put the machine in motion, and press it backward to stop.

The improved Adams TraveLoader features a new, rocker-type foot pedal.

Tire sizes on the TraveLoader have been increased to 13.00-24 lug type, both front and rear, providing more flotation and better ground grip in soft going. By hydraulic control from the cab, the pick-up moldboard can be tilted at either side so that the machine conforms to the surface being worked.

The self-propelled loader features a choice of two conveyor lengths, and is powered by a gasoline or diesel engine. It loads up to 10 cubic yards of loose material a minute, and up to 20 cubic yards of snow.

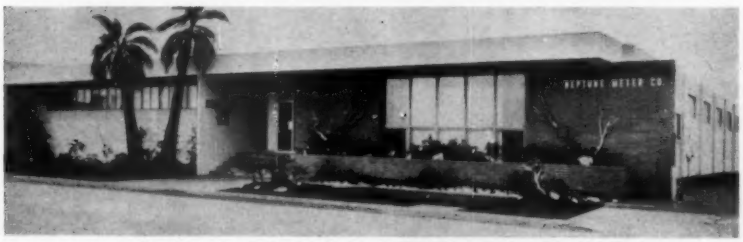
Changes are also announced in the engine and horsepower ratings of the Adams line of motor graders. The No. 660 grader is now powered by a 150-hp engine; the No. 550, a 123-hp engine; the No. 440, a 100- or 104-hp engine; and the No. 330 is powered by either a 75- or 80-hp engine. These engines may be Cummins or GM models.



New engine and horsepower ratings distinguish these motor graders.

Detailed information on the TraveLoader and Adams motor graders may be obtained directly from the manufacturer, or take advantage of the Post Card on the insert following Page 50. Circle No. 781.

Meter Company Opens West Coast Branch



A front view of Neptune's new Pacific Coast headquarters.

Facilities for testing and repairing water and other liquid meters have been installed at the new West Coast branch of the Neptune Meter Co., located at 5540 E. Harbor St., East Los Angeles, Calif. The new building provides 25,000 square feet for testing, repairing and warehousing residential, commercial and industrial meters. Space is provided for keeping a large stock on hand for prompt servicing of public water supply systems, and a large Parts Department will service water utilities which maintain their own testing and repair shops.

The new, one-story building was designed and built by Jack H. MacDonald and Cejay, Parsons, Associated Architects and Engineers of Beverly Hills. Main offices of the Neptune Meter Co. are located at 19 W. 50th St., New York 20, N. Y.

Mueller to Expand Chattanooga Plant

Plans for an expansion program costing over $1,000,000 that will add about 81,000 square feet of floor space to the Chattanooga (Tenn.) plant of the Mueller Corp., were announced recently by O. E. Walker, the company's vice-president and works manager. The new program will include additions to existing buildings, the replacing of one building, and the purchase of additional machinery. Work is expected to begin immediately, and the entire project will require about one year for completion.

The Chattanooga plant manufactures water-works material, fire hydrants and gate valves. Main offices of the Mueller Corp. are located in Decatur, Ill.

All About Chlorination

Chlorination problems and how they affect various water-departments throughout the country, are discussed in *Chlorination Topics,* an informative bulletin published by WALLACE AND TIERNAN INC., 25 MAIN ST., BELLEVILLE 9, N. J. The most recent issue of the W & T publication, Vol. 9 No. 2, features an inside view of the Evansville (Ind.) filter building, a description of a deep well at Hawthorne, Calif., and a discussion of the effects of Hurricane Diane on the country's water supplies.

Interested city officials may have their names placed on the mailing list to receive this quarterly publication. Write the company directly or use the Post Card following Page 50. Circle No. 790.

WORKING TOGETHER—BUT NOT "OUT-OF-SERVICE". Both men may leave their patrol car together in Parma, Ohio. A G-E selective calling system will either "recall" them to their radio, or "leave a call" for them automatically. Here is greater safety for the men, with radio contact assured at all times.

CONTACT YOUR RADIO PATROLMEN EVEN WHILE AWAY FROM THEIR CARS

You can contact your radio car patrolmen, even while they are away from their cars, with General Electric all-electronic selective calling equipment. This means no one need stay in the car to receive a radio call—one patrolman in the daytime, two men during dangerous night hours, all fully available for police duty *outside* the car.

With a G-E selective calling system, you can "recall" or "leave a call" for your out-of-car patrolmen.

To reach these patrolmen, the dispatcher sends electronic tones assigned to that car. The tones automatically flash the car's emergency light, or sound the horn. The installation can be made to permit selection of either light or horn, by the patrolman himself, before he leaves the car. AND—if he is out of range of the light or horn, selective calling "leaves the call" by a signal light on the radio control unit. The light remains on until he returns to the car and answers the call.

The selective calling system assures *full-time contact* with *all cars*, and saves valuable air time formerly consumed by "out-of-service" reports.

Investigate dependable and versatile G-E *all-electronic* selective calling systems. For full details, write today to: *General Electric Company, Section X1016, Communication Equipment, Electronics Park, Syracuse, New York.*

DISPATCHER at Parma, Ohio, can contact radio car patrolmen—in their car or out. He can automatically "recall" or "leave a call" for patrolmen away from their car with G-E all-electronic selective calling.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Saws 20-Inch Trees in Seconds

Weighing only 20 pounds, the new Model 5-20 chain saw delivers a full 5 hp, enabling one operator to slice through a 20-inch tree in about 20 seconds. This efficient unit will bring down timber up to six feet in diameter, without forcing or jamming the saw. It cuts in any position—up, down and upside down—on all types of cuts—felling, bucking, boring, notching, trimming or undercutting.

Homelite has designed the new Model 5-20 for long, dependable performance and economical maintenance. Because of its all-angle, diaphragm carburetor and light, balanced weight, the saw is especially easy to handle.

With a low-cost clearing attachment, the Model 5-20 becomes a fast-cutting tool for clearing highway, pipeline and power line rights of way. A new brush-cutter attachment quickly converts the unit into a safe, easy-to-operate power scythe that cleans out brambles, brush, undergrowth and small saplings.

Straight blades for the new saw will be furnished in sizes ranging from 14 to 60 inches. Plunge cut bow saw attachments are available in 14- and 18-inch sizes.

For full details, write HOMELITE, 101 RIVERDALE AVE., PORT CHESTER, N. Y., or you may use the Post Card on the insert following Page 50. Circle No. 786.

STEEL

Every Kind
Quick Delivery

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Endorsed by Leading Meter Manufacturers!

- Cleans — Rinses — Polishes — Dries!
- Eliminates tedious hand work & service calls!
- Giant Basket — 7¾" inside x 3¾" deep!
- Removable small parts partition!
- Metal, non-breakable Tanks—10" diameter 10½" high!

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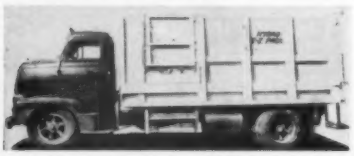
Zenith MFG. & CHEMICAL CORP.
82 BEEKMAN STREET • NEW YORK 38, N. Y.

Fast, Economical Refuse Collection



This powerful Hydro E-Z Pack refuse collection body produces packing pressures up to 82,500 pounds.

The advantages of maximum collection efficiency, improved sanitation and reduced operating costs are combined in the new Hydro E-Z Pack hydraulic packer-type refuse collection body. This dependable unit is designed to handle chairs, beds, tree limbs and other bulky items ordinarily picked up with open trucks. It is available in body lengths of 11, 14 and 16 feet with refuse capacities from 12- to 20-cubic-yards, and is easily mounted on any 1½- or 2-ton truck with a standard wheelbase.

The new E-Z Pack produces packing pressures up to 82,500 pounds. The body consists of a rigidly-braced outer shell and a curved, box frame-reinforced sliding platen, powered by a double-acting, multi-sleeve hydraulic cylinder. A pump, driven by the truck engine through a power take-off, provides hydraulic pressure, and a manually-operated, 4-way valve controls platen movement. There are no cables, chains or complicated mechanisms to increase operating costs.

A more complete description of the new Hydro E-Z Pack may be obtained from the Hydro E-Z Pack Div., HERCULES GALION PRODUCTS, INC., GALION, OHIO. Write directly, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 797.

Denominators Help Solve Traffic Problems

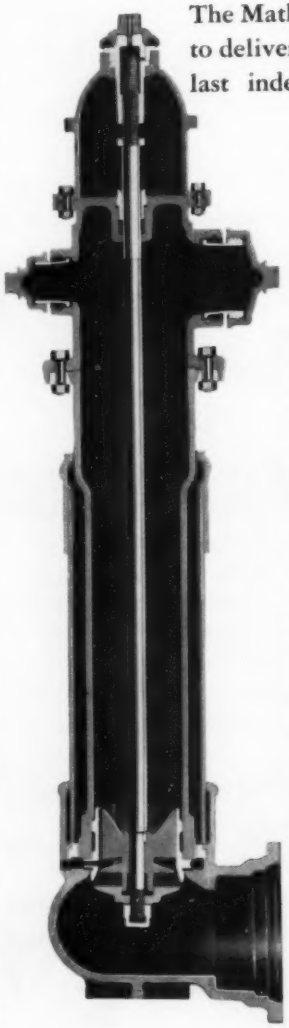
Any solution to the traffic problems of a city, state or nation starts with a survey of existing conditions and a compilation of facts and figures on traffic volume. What are the peaks? What are the "bottlenecks?" What portion of traffic can be diverted or re-routed and still reach its required destination as easily?

Simple flow of traffic in one direction, as on a Thru-Way, is easily recorded by electronic or pneumatic counters. But these counts are not the ones which reveal possible solutions—they merely indicate the magnitude of the problem at some distant dispersal point. The real questions are: What are conditions at the city's intersections? What kind are the vehicles? What are their turning movements, destinations, or parking intents? The Denominator traffic control machine was designed to answer these questions.

The simplest case would be a count of the turning movements at an intersection. At any 4-square corner, with 2-way traffic on each street and no restricting regulations, 12 different movements of traffic are possible. They are recorded by four 3-unit counters. Because such surveys and counts must be made outdoors in all weather, the Denominator is available in a new metal encased model.

For additional information, write THE DENOMINATOR CO., INC., 261 BROADWAY, NEW YORK 7, N. Y., or you may use the Post Card on the insert following Page 50. Circle No. 785.

Reduce Wear, Save with Mathews



The Mathews Flange Barrel Hydrant is designed to deliver every available gallon of water and to last indefinitely with minimum maintenance.

CHECK THESE IMPORTANT FEATURES

The Flange Barrel

The swivel flange at the base of the nozzle section permits nozzles to be faced toward any point in the complete circle. Saves time on original installation and on replacements.

On broken hydrants, top cap and nozzle sections can usually be salvaged, thus reducing accident costs.

The Stuffing Box Plate

Cast integral with the nozzle section, the plate keeps water and sediment away from the operating thread. Hydrant remains operable in any weather. Wear on the operating thread is largely eliminated.

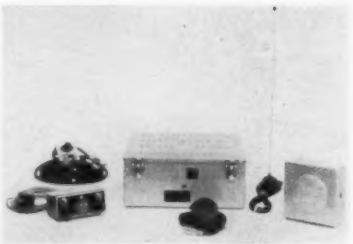
Made by

Available with mechanical joint pipe connections.

Radio for Airports, Police and Street Departments

A 2-way radio unit has been developed for use on airport service trucks, tractors, snow plows and police cars. It is equally applicable in either 6- or 12-volt vehicles. The fact that it permits 2-way communication between the airport control tower and a vehicle—police car, for instance—has brought the equipment into widespread use at municipal airports from Syracuse to Atlanta and Miami to Seattle. This feature of tower-to-vehicle communication is extremely important and, in a number of cases, essential. It also has its value in civil defense operations.

One of the important operations of the 2-way radio is in towing airplanes. A tractor equipped with 2-way radio can get clearances from the tower and tow the plane from the maintenance terminal to the take-off point. On the San Francisco airport, this is a mile run. Taxiing, a DC-6 consumes 30 gallons of fuel, compared with the half-gallon used by a tow tractor.



The new radio Controller unit makes a compact mobile package.

The model used is a 6/12-volt VHF amplitude modulation mobile radiotelephone unit designed especially for airport vehicular ground control on the airport utility frequencies 121.7 and 121.9 mc. It can be furnished for operation on any frequency in the 118-152 mc band. The transmitter has an output of 3 to 4 watts which is ample for solid mobile-to-tower communications over any airport. The same Controller is suitable for use in ramp jeeps, electrician's trucks, crash trucks, tow tractors, snow plows, executive cars and police cars. An AC model is available at temporary locations such as construction sites. The company will also furnish a 24V DC model.

In addition to the VHF-AM Controller, the COMCO line includes Fleetcom models for VHF-FM police systems. These are available for both the 25-54 and the 144-174 mc bands.

A leaflet describing the new 278-6/12 Controller as well as a complete price list and engineering specifications, are available from the COMMUNICATIONS CO., P. O. BOX 6250, CORAL GABLES, MIAMI 34, FLA. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 784.

Time and Money Flange Barrel Hydrant

Breakable Flange and Stem Coupling

Optional feature furnished at extra cost. Specially designed flange in the standpipe just above ground level and a frangible coupling in the hydrant stem are designed to snap when struck a blow heavy enough to break the hydrant. Both can be replaced quickly *and without excavating*, while hydrant head, standpipe and stem remain undamaged.

ADDITIONAL ADVANTAGES

Two-way heads can be replaced with steamer and two-way heads without shutting off water.

Shield operating nut assures protection for the revolving nut from sleet, snow or dust.

An extension piece may be inserted between hydrant head and barrel or between barrel and elbow.

R. D. WOOD COMPANY

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

New Offices for Recordak

The 20th floor of a new 24-story building being constructed at 415 Madison Ave., Dept. BB-1, New York City, will be the new national headquarters of the Recordak Corp., according to a recent announcement. The company will maintain its Northeast Region Area office and its New York Branch office at 235 W. 23rd St. Recordak is a subsidiary of the Eastman Kodak Co.

FIRST CHOICE OF 2600 MUNICIPALITIES

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LOAD-PACKERS GIVE YOU...

Greater Sanitation... fully enclosed, leakproof and odor-proof. **Faster Loading**... low, wide hoppers save labor, speed loading. **Positive Compaction**...handle maximum loads. **Complete Dumping**... tapered bodies; no obstruction inside to catch load. **Better Service**... collect everything;eliminate selective loading. **Lower Maintenance Costs**... fully hydraulic for long life, trouble-free service.

Here's why more municipalities own GAR WOOD LOAD-PACKERS than all other makes combined...

Load-Packers, the original packing-type refuse collection units, provide greater sanitation at a lower cost. Contributing to this stand-out performance are such Load-Packer advantages as faster loading, positive compaction, complete dumping, lower maintenance costs, better collection service. These advantages explain why Gar Wood Load-Packers are first choice of over 2,600 municipalities...from small communities served by one unit, to large cities that use hundreds of Load-Packers to maintain collection schedules.

What about the collection schedules in *your* municipality? Could they be maintained better and more economically by Load-Packers? You can find out for sure by calling your nearby Gar Wood-St. Paul distributor, or by writing to: Customer Service Department, Gar Wood Industries, Inc., Wayne, Michigan.

GAR WOOD INDUSTRIES, INC.

Wayne, Michigan • Richmond, California

Plants in Wayne and Ypsilanti, Mich.; Findlay, Ohio; Mattoon, Ill.; Richmond, Calif.

Gar Wood Truck Cranes | Gar Wood-St. Paul Hoists & Bodies | Gar Wood Excavators | Gar Wood-Buckeye Ditchers | Gar Wood-St. Paul Frate-Gates | Gar Wood-Buckeye Spreaders | Gar Wood Winches

New Three-in-One Snow Plow

Three efficient snow plows in one sturdy unit are offered for use on streets, airports, highways and turnpikes. The new Wausau Triple 3-Way Plow can be positioned as a "V" plow, as a one way right hand discharge, or as a one way left hand discharge. Thus, it is able to meet all requirements for a high-speed unit that can discharge snow to the right or left, according to wind conditions.

In Vee position, the new plow features a cutting width of 11 feet-6 inches, and in one way position, 9 feet-6 inches. Cutting width in Vee position with one 12-foot wing is 17 feet-6 inches; one way and one 12-foot wing, 18 feet-6 inches; and Vee and two 12-foot wings, 23 feet-6 inches.

A more detailed description of the new Triple 3-Way Snow Plow is available from the WAUSAU IRON WORKS, WAUSAU, WIS. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 774.

Avoids Wasting Fire-Fighting Chemicals

Built-in proportioning systems for municipal fire trucks can cut costs by avoiding waste of the foam liquid or wetting agent.

When the truck is operated and a booster line is put into service, these liquids are placed in booster tanks on the truck. This means that the foam liquid or wetting agent must be used regardless of the type of fire. In contrast, when a proportioning system is used, the liquid can be turned on or off as required.

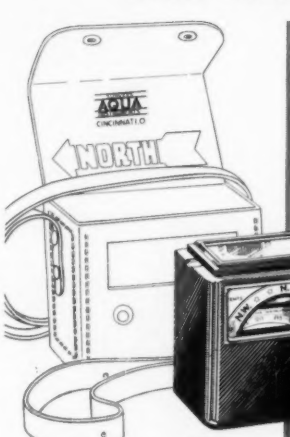
Many fire department officials complain today that they do not have adequate man power due to the shorter working hours of firemen. When too few men are available on each piece of apparatus, automatic proportioning systems for foam liquid and wetting agent provide a means of getting more effective fire-fighting and extinguishing action out of each individual fire truck.

Proportioning systems utilizing foam liquid may also utilize the new type of Rockwood double strength foam liquid as a space saver on a municipal fire truck. A data sheet describes the type SG-60 nozzle for fire-fighting where foam is involved. It provides a fire department with five types of discharge: (1) high velocity waterfog, (2) low velocity waterfog, (3) solid water stream, (4) fogfoam, and (5) solid foam stream. Three pamphlets describe the new nozzle, double strength foam liquid, and the proportioner for fire trucks and fixed foam systems.

Copies of the pamphlets and data sheet may be obtained from the ROCKWOOD SPRINKLER CO., 38 HARLOW ST., WORCESTER 5, MASS. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 777.

LOCATES VALVES QUICKLY

even under heavy snow, ice, black top



One in every truck...

Many gas and water departments have the Aqua locator on every service car and truck. Saves time and expense of emergency runs.

Our Canadian Distributors:
Canadian Brass Co., Ltd.
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Montreal, Can.
Prices slightly higher in Canada

the NEW

AQUA VALVE BOX LOCATOR

The miraculous new Aqua locator takes you directly to the valve box . . . *even when the ground is covered with snow, ice or black top.* Saves hours of back-breaking digging in hard, frozen ground.

And you get pinpoint accuracy, with no needle nervousness. Aqua "electric braking" action reduces needle spinning to absolute minimum.

$29.50 f.o.b. CINCINNATI
Your Name In Gold Free

- Top-view reading. No stooping.
- Factory adjusted to your geographical location.
- Instrument includes compass.
- New high impact Styron plastic case virtually indestructible
- Compact, convenient, non-variable.
- Guaranteed to function regardless of ground cover.

FREE 15 DAY TRIAL
AQUA SURVEY & INSTRUMENT CO.
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FREE TRIAL MAIL COUPON

Gentlemen: Please send me
☐ New Aqua Valve Box Locator for FREE 15 day professional trial, without obligation.
☐ Detailed literature on new Aqua Valve Box Locator.

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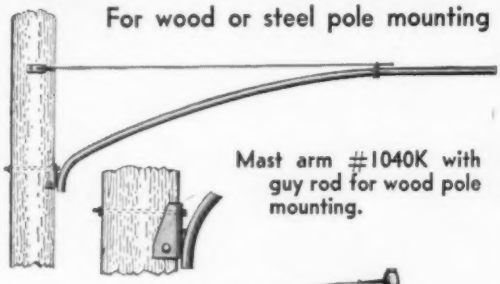
KERRIGAN Weldforged
TRADEMARK

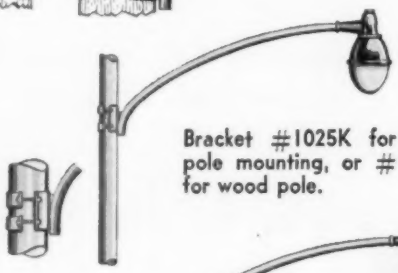
Steel Brackets & Mast Arms

For Economy & Beauty

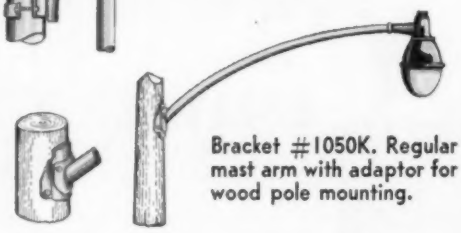
For wood or steel pole mounting



Mast arm #1040K with guy rod for wood pole mounting.



Bracket #1025K for steel pole mounting, or #1035K for wood pole.

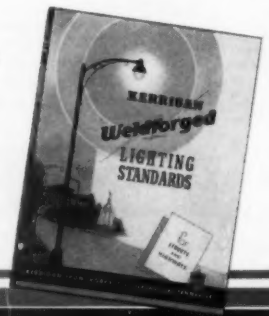


Bracket #1050K. Regular mast arm with adaptor for wood pole mounting.

Kerrigan's complete line of brackets and mast arms are carefully engineered for easy installation and wiring. They meet all I.E.S. street lighting recommendations. So, take advantage of your wood poles now in place and brighten up your city or town NOW!

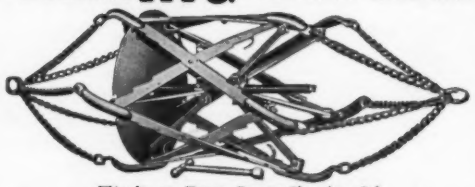
Let us help you

solve your city's lighting problems. Send for our FREE catalog containing engineering data. It shows how simple installation really is.



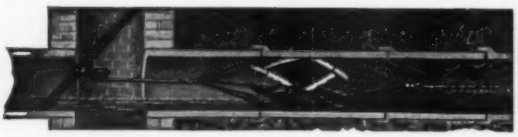
KERRIGAN IRON WORKS, INC.
Nashville, Tennessee
Gen'l. Sales Office — 274 Madison Ave. — N.Y.C.

EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.



Open and in action removing roots and caked sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey

Street Lighting, Traffic Marking Service Growing

New Hicksville plant of the Broadway Maintenance Corporation.

A new service plant of the Broadway Maintenance Corp. will open at Hicksville, N. Y., for neon sign and fluorescent lighting repair and for air-conditioning work. The company is best known for the installation and maintenance of street lighting, traffic-signal systems and parking meter maintenance operations in New York City, and for the street-lighting system in Pittsburgh.

Another contribution of Broadway Maintenance to traffic control and safety is the long-lasting "veon" traffic marking compound. Details on this marking material will be furnished by the BROADWAY MAINTENANCE CORP., 22-09 BRIDGE PLAZA NO., LONG ISLAND CITY, N. Y. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 792.

AD-X2 Making Headway

After seven years of testing in laboratories and large industrial accounts, Battery Additive AD-X2 is finally available to the general public, reports Jess M. Ritchie, president of Pioneers, Inc., 2411 Grove St., Oakland 12, Calif. FTC charges that the product did not function according to claims made for it by the manufacturer were dismissed recently by William L. Pack, examiner for the Federal Trade Commission. The order, however, is not final and may be stayed, appealed or docketed for review by the 5-member FTC.

During the hearings, some 45 persons testified for Mr. Ritchie concerning their experiences with the product. These witnesses included the chief electrical engineer of the Gillette Razor Co., the operations supervisor of Lever Bros., and the chief electrician of the Boston Army base. The substance of the testimony, according to the examiner, was that AD-X2 caused batteries to last longer, to recharge more efficiently, and operate more effectively, with less sulfation, less heat, and less water loss. It also showed that battery costs were materially reduced.

Battery AD-X2 was scientifically developed to combat sulphation in lead-acid batteries. It was perfected in 1947 under the direction of the late Merle Randall, professor emeritus of the University of California. Jess M. Ritchie is the co-inventor.

The Bernard

Pressure

Pilot Control

for water supply systems

Designed to operate pump motor controllers on single or multiple pump systems, according to the pressure demands, and to assure correct start and stop operation of pump motors without interference of water system surges. The Pilot Control also operates selective sequence control of pump motors according to the anticipated demand.

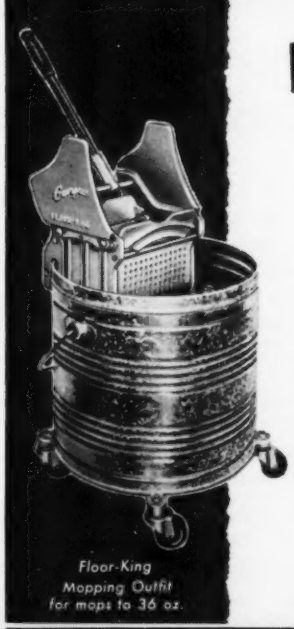
Write for further information

ERNEST BERNARD ELECTRIC CO.

10335 S. Morgan St.

Chicago 43, Illinois

MAKE FLOOR CLEANING FAST, EASY and EFFICIENT



Floor-King Mopping Outfit for mops to 36 oz.

. . . with Geerpres mop wringers. Mops last longer and do more work because Geerpres Interlock gearing lets you wring mop just the way you want it without twisting or tearing. Light handle pressure gives controlled, powerful squeezing action to force mop down and eliminate splashing.

Geerpres wringers last longer because they are ruggedly constructed of the finest materials. Electro-plated finish on all wringers is exclusive with Geerpres. Yet, they are light, compact and easy to handle on ball-bearing rubber casters.

Sizes and styles for every mopping need. Complete line of accessories, too. Write for Catalog or see your jobber.

GEERPRES WRINGER, INC.

P.O. BOX 658 **MUSKEGON, MICHIGAN**

Consulting engineer for the Northwest Pumping Main: Gilbert Associates, Inc. *General Contractor:* Berlanti Construction Co., Inc.

7-Mile Pumping Main Under Way in Reading, Pa.

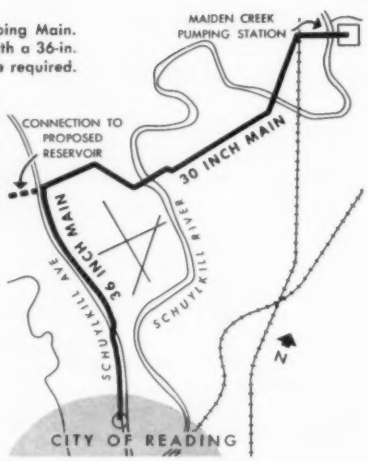
The City of Reading, Pa., a growing community of 135,000 people, is engaged in a broad program of water-supply improvement. A key phase of this program is construction of the Northwest Pumping Main, a 37,000-ft steel line supplying water from Maiden Creek Pumping Station to the center-city area, and providing connections with two large reservoirs soon to be built.

The major portion of the line consists of Bethlehem Tar-Enameled Steel Pipe in 36-in. and 30-in. diameters. The pipe was fabricated, coated, lined and wrapped at our Steelton, Pa., plant, and supplied in 40-ft lengths. In the field three 40-ft lengths were butt-welded together adjacent to the trench to form 120-ft sections. These long sections were then lowered into the trench and joined with mechanical couplings.

We suggest that you consider Bethlehem Tar-Enameled Steel Pipe for your next water-main project. Steel pipe is strong and resilient, well able to withstand shocks from both external and internal forces. And remember that each steel pipe is actually hydrostatically tested in the shop, ordinarily to twice the working pressure!

Bethlehem Tar-Enameled Steel Pipe is available in all diameters from 18 in. to the largest permitted by common carriers, and in 40-ft lengths. The nearest Bethlehem sales office would be happy to give you detailed information.

Map shows the route of Reading's Northwest Pumping Main. The 30-in. line from the pumping station connects with a 36-in. main. Three crossings under the Schuylkill River were required.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

School Speed Limit Clearly Defined

This new school signal combines the use of Standard Winko-Matic alternating flashing amber lights, with a Portland Orange grid system, illuminating the speed limit message on a blank-out principle. The signal is offered with a rectangular speed limit sign measuring 24 x 36 inches. The sign is in black and white and reads "School Speed Limit."

The 35-mph message is illuminated in Portland Orange, and the flasher lights are Traffic Yellow. The entire unit is operated automatically by a time switch, providing three on and three off periods each day, and eliminating operation on Saturday and Sunday.

When the signal is energized, both the flashers and speed limit message are legible, the flashers illuminating alternately, while the speed limit message burns continuously. When the signal is not energized, both the flashers and the speed limit message are illegible.

The new Model BR25ATN school signal installed on a state highway in Michigan.

The new school signal, Model BR25-ATN, features a flexible speed limit warning, easily changed to conform with local speed zones. It is available from the WINKO-MATIC SIGNAL CO., LORAIN, OHIO.

For further information, write the company directly, or you may use the Post Card on the insert following Page 50. Circle No. 771.

Australian Firm to Make Athey Equipment

B. F. Lease, president of the Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill., announces the signing of a licensing agreement with Steelweld Pty. Ltd., of Victoria, Australia. The terms of the new agreement permit the Australian firm to manufacture Athey products to the company's specifications. They offer an effective solution to such problems as dollar shortages, high tariffs and the severe import regulations encountered in some areas.

Steelweld is the third manufacturer licensed by Athey. Others include Birtley Co., Ltd., England, and Wright, Boag & Head, Wrightson, Ltd., of South Africa.

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

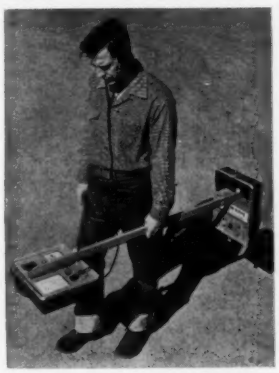
PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY
Muscatine, Iowa
P.O. Box 307 Amherst 3-2711

Find Pipes Faster!

Use the new "Electronic Witch" M-SCOPE



Outperforms any pipe locator on the market, regardless of price or design! Fully GUARANTEED:

- Built-in leak detector circuit in every instrument.
- Completely new electronic circuit—no wound antenna loops—no beat oscillator.
- Traces further and more accurately.
- Greater receiver sensitivity —no outside interference.
- 50% less "B" battery consumption.
- Built-in Battery Checker available.

ONLY . . $162.50
with indestructible Fiberglas cabinets.

Send for FREE Manual
"Special Pipe Finding and Leak Detecting Techniques"

Free Instrument Catalog

Fisher
Research Laboratory, Inc.
Palo Alto, California
Geophysical Instruments Since 1932

How an Aero Relief Map can help your planning

With an AERO Relief Map of your city, proposed projects become more meaningful to appropriations committees, as well as to the press and general public. Engineering problems are presented in terms which laymen can quickly understand.

No flat map can come to life as an AERO Relief Map does. Hills, valleys—the complete picture is there for you to see. This bird's-eye view helps you answer such problems as *industrial siting and development, housing, land use, traffic control, civil defense.*

AERO Relief Maps likewise give quick, accurate pictures that help solve such engineering problems as *sewerage, drainage, location of streets* and *by-passes* and *power lines.* Sound decisions come easier and faster when guided by these remarkably graphic relief models.

Made of sturdy, lightweight Vinylite, they are plastic coated—may be marked on with china pencil to point up specific problems—then wiped off easily.

FOR ANY CITY OR TOWN, LARGE OR SMALL

AERO Relief Maps are molded to meet your specifications. They can cover any area. You can order one, a dozen, or hundreds. Cost depends on size, quantity and amount of detail.

GET THE FACTS! Outline the approximate area you're interested in covering. Our engineers will supply you promptly with full details on how an AERO Relief Map can be produced for you.

New AERO *Relief Map of Seattle area covers 1,520 sq. mi., from Puget Sound to crest of Cascade Mountains, which rise 5" on the relief map. Engineers use it as planning aid for new water supply routes and power lines, and many other projects.*

Course of the Snoqualmie River seen on the Seattle relief map.

Toronto engineers use AERO *Relief Map of metropolitan area for solving problems of city growth. 50 copies were delivered. They save engineering time and manpower.*

AERO SERVICE CORPORATION

PHILADELPHIA 20, PA.

Oldest Flying Corporation in the world

Offices also in TULSA, DULUTH, SALT LAKE CITY, SAN FRANCISCO, OTTAWA

AERIAL PHOTO MAPS • TOPOGRAPHIC MAPS • TAX MAPS • RELIEF MAPS

Dorr-Oliver and E. Long Combine Canadian Operations

J. D. Hitch, Jr., president of Dorr-Oliver Inc., Stamford, Conn., announces plans for the integration of the Canadian operations of Dorr-Oliver with those of E. Long Ltd., of Orillia, Ontario. The new organization will be known as Dorr-Oliver-Long Ltd.

Clarence R. Long, a director of Dorr-Oliver and president of E. Long Ltd., will serve as president of the enlarged organization. Headquarters will be located in Orillia with the former Toronto office of Dorr-Oliver and the Vancouver office of E. Long operating as divisional sales offices.

The filtration equipment now built and marketed in Canada by E. Long is complementary to the industrial and sanitary equipment marketed there by Dorr-Oliver. Both are often used in conjunction with each other in a variety of industries. The new consolidated operation will permit a more extensive sales coverage, more efficient operation and better service to customers.

IH Truck Pinch-hits as Speakers' Platform

When Chicago's Mayor Richard J. Daley (center) launched the city's 1955 Community Fund Campaign at the world's busiest corner, State and Madison streets, during the noon-hour rush, a new S-Line International truck served as a mobile speakers' platform. The truck is a product of the International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

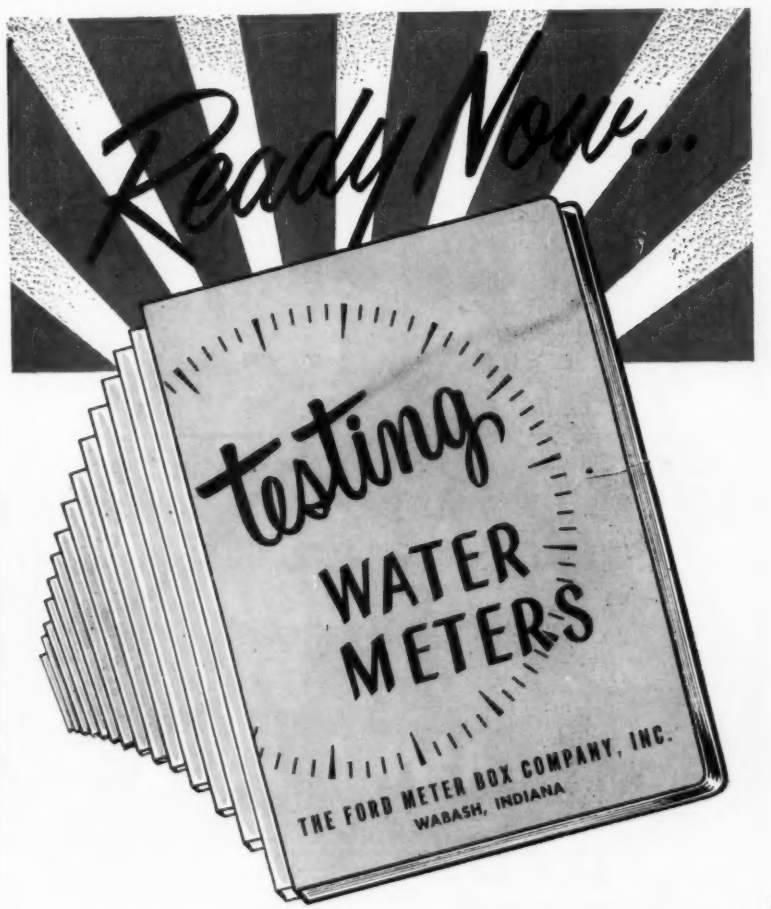
Packaged, Automatic Sewage Pump Stations

The exodus to the suburbs has, in many municipalities, created a need for extending existing sewer systems. Frequently, however, it is impractical to obtain gravity flow to the existing sewers. Instead, mechanical means must be employed to raise the sewage so that it can reach the level of existing mains.

One of the most dependable and economical ways to handle extensions to existing mains is with a Zimmer & Francescon underground pumping station. The Z-F packaged plant is constructed of heavy steel plate, reinforced against exterior hydrostatic forces. The plant housing is furnished in two sections, easily assembled right on the job site.

The automatic lift station is usually not less than seven feet in diameter and seven feet high. It is furnished with an entrance tube on top, three feet in diameter, to provide access from the surface. Station capacities can be as high as 600 gpm at heads up to 80 feet.

Additional data on Z-F prefabricated lift stations may be obtained from ZIMMER & FRANCESCON, MOLINE, ILL. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 769.



This 40 page book gives useful information, charts, data and instructions on water meter testing. Should be in every meter shop. Available on request without charge or obligation.

SEND FOR YOUR COPY

THE FORD METER BOX COMPANY, INC.
WABASH, INDIANA

FOR BETTER WATER SERVICES FORD

LINDSAY MODEL 80
RADIAL TYPE AIR COMPRESSOR

80 C.F.M. Air Delivery

Weighs 1225 lbs.

Truly Portable

Inexpensive to Own and Operate

Runs Heavy Breaker or Drill

Write for Details

P. K. LINDSAY CO. 97 Tileston Street Everett, Mass.

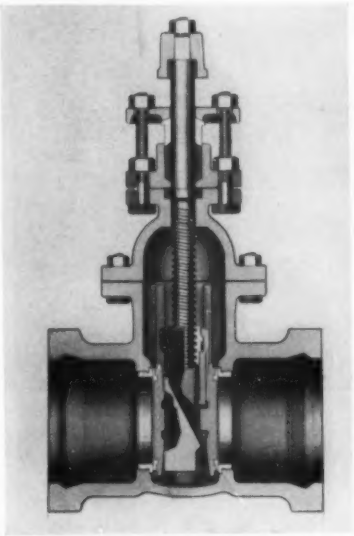
HERE'S THE SOLUTION FOR TRICKY TRAFFIC TROUBLES

Students who study traffic look to Miro-Flex for the sign that handles those ticklish traffic problems as well as for signs that control the normal traffic flow. Not only do they rely on the experience that Miro-Flex has of working with traffic engineers, but they know that all Miro-Flex signs are made for legibility, strength, and durability. That is why Miro-Flex signs are embossed. Write for your catalog today. or let the Miro-Flex Company know your special traffic problem.

WRITE TO THE MIRO-FLEX CO., INC.

1824 EAST SECOND STREET WICHITA, KANSAS

New Design in Gate Valves



Sectional view of Crane's newly-designed, double-disc, parallel-seat gate valves.

Water-works men are offered something entirely different in the line of iron-body, double-disc, parallel-seat gate valves. These valves, reports J. A. Dwyer, vice-president of the Crane Company's industrial sales division, feature a disc assembly of only four parts—as compared to 13 parts in the more complicated old style construction. The entire assembly is simple and efficient, cannot be incorrectly assembled, and won't fall apart while in service.

The new design applies to non-rising stem valves only, with the addition of mechanical joint end valves, to sizes up to 12 inches. It is fully described in literature from the CRANE CO., 836 S. MICHIGAN AVE., CHICAGO 5, ILL. Write directly, or you may use the Post Card that is located for your convenience on the insert following Page 50. Circle No. 796.

First Axial Blower for Sewage Aeration

The first axial air blower to be used in this country for sewage aeration work is scheduled for delivery to the Sanitary District of Chicago's West-Southwest Sewage Treatment Plant at Stickney, Ill. The unit is a 200,000-cfm, free-air capacity, 8½-pound gauge blower. It is made by the Allis-Chalmers Mfg. Co., Industries Group, Milwaukee 1, Wis.

In the past, centrifugal blowers have been used for aeration duty in moderate and large size plants. However, the high efficiences of the axial equipment make it especially useful in base load work. The new base load machine is expected to facilitate the use of existing centrifugal units to carry swing loads.

The A-C axial air blower will be driven by an 8,250-hp, 3,600-rpm WA-Series steam turbine. In addition to the blower and turbine, the company is furnishing a 7,500-square-foot surface condenser for this installation.

Ingersoll Kalamazoo Offers Load Lugger Line

The Load Lugger line of truck bed hoists and bulk materials containers, formerly available from the Brooks Equipment & Mfg. Co., is now being engineered, manufactured and marketed by the Ingersoll Kalamazoo Div., Borg-Warner Corp., 1818 N. Pitcher St., Kalamazoo, Mich. The division is headed by J. H Ingersoll, president, and R F. Schutz, manager. The former Brooks Equipment & Mfg. Co. is now a Borg-Warner subsidiary.

NEW CATALOG!

MUNICIPAL SUPPLIES

No. 152

ESTABLISHED 1908—47 YEARS OF SERVICE

W.S. DARLEY & CO.

CHICAGO 12 · ILLINOIS

WRITE TODAY
For
100-PAGE
MUNICIPAL CATALOG

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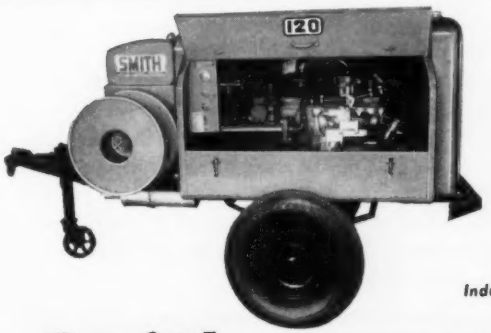


Model 120-P

Powered by CHRYSLER Industrial Engine

Smith 120-P air compressor

Operates all these tools—for less!

- ✓ Two 80-lb. paving breakers.
- ✓ Two 80-lb. sheeting drivers.
- ✓ One 50-lb. rock drill.
- ✓ Four backfill tampers, or two concrete vibrators.

Write for complete facts and names of nearest dealer!

CUTTING COSTS FOR CONTRACTORS—Maine to California!

The Smith 120-P gives operating economy that big compressors can't approach. Goes where big, bulky compressors can't go. Powered by heavy-duty Chrysler Model 22 Industrial Engine. Simple, compact design—minimum fittings, gaskets, etc. to break down or cause trouble. No couplings, no clutch. Finned aftercooler reduces air temperature approx. 200°, gives longer hose life!

Also the Smith 70-P Compressor

GORDON SMITH & CO., Inc.

425 College Street
Bowling Green, Kentucky

Minneapolis throws light on how municipalities purchase equipment

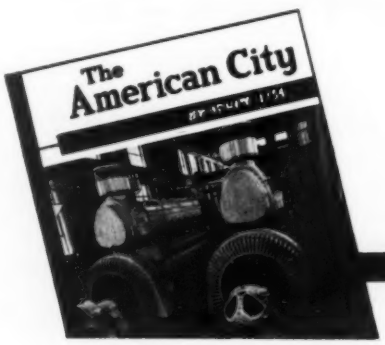
When city governments buy equipment, the purchasing process usually involves the recommendations of the engineers in charge of the project and the approval of administrative and policy-making officials, such as the mayor and city council. The Minneapolis story is no exception.

Ralph Sprungman

Recently Lake Street received the "new look". Street widening and resurfacing, new sidewalks, and installation of General Electric fluorescent luminaries and Union Metal lighting poles involved the spending of one and a quarter million dollars. The officials planning and supervising the work were Traffic Engineer Ralph Sprungman, his assistant, Thomas Thompson, and City Engineer Hugo Erickson.

When asked how the purchasing procedure works, Mr. Sprungman replied, "Our municipal operation demands that we write specifications on needed equipment. All three of us have a say in drawing the specifications, and we each pick up ideas on equipment from THE AMERICAN CITY, which is routed regularly from the City Engineer's office. In the end the low bid which complies with specifications is the one which we recommend to our City Council for its official action."

General Electric and Union Metal advertise regularly in THE AMERICAN CITY in order to tell both the engineering and the administrative officials about the values of their products. These officials will also see *your* message if you invest your advertising dollars in THE AMERICAN CITY.



The American City

470 Fourth Avenue, New York 16, N.Y.

Concrete-Cutting Diamonds

The increasing interest in diamonds for cutting concrete and other materials, has led to the preparation of an informative new film, "Diamond Mining In South Africa," available for showing from the FELKER MFG. CO., TORRANCE, CALIF. The film is in color and runs 28 minutes. Bob Trent, well-known radio announcer and TV commentator, narrates the interesting story.

"Diamond Mining In South Africa" has been designed to use the latest slide film projectors. It does not require manual changing from scene to scene. If you have a slide projector which uses manual signs for moving from frame to frame, the company will supply, without cost, a record with audio signals for the operator.

To obtain a copy of the new film along with the record of narration, city officials are advised to contact the company directly, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 780.

PARCOA provides...

A NEW CONCEPT FOR OFF-STREET PARKING

AUTOMATIC PARKING features...

- ★ **FLEXIBILITY OF CONTROLS**—Choice of exclusive coded "card-keys", coins, tokens or any combination.
- ★ **NO ATTENDANTS NEEDED**—Pays for itself.
- ★ **SIMPLICITY OF OPERATION**
- ★ **MINIMUM MAINTENANCE**
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- ★ **SAFETY . . . DEPENDABILITY**

Write for descriptive literature.

PARCOA

Division of Johnson Fare Box Company

4619 N. Ravenswood Ave., Chicago 40, Ill.
Phone LOngbeach 1-0217
Sales and Service Offices in Major Cities listed under BOWSER, Inc.

"The jobs it will do . . . the savings it makes . . . put BANTAM in a class by itself,"

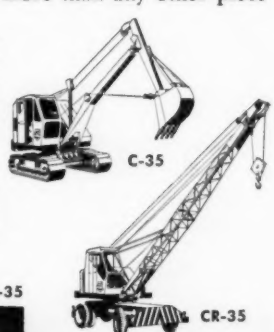
say city officials!

BANTAM takes over hundreds of jobs around town, saving time and manpower on each—sparing expensive one-job equipment. BANTAM is the ideal size for easy driving and easy working, whatever and wherever the job may be. It's the lowest priced rig of its kind to buy . . . the lowest cost and easiest to maintain!

City engineers are BANTAM minded because of its unusual versatility and big return on investment—summed up by one official's statement: "Outside of our trucks, BANTAM is used more than any other piece of equipment."

You name the job—if it's lifting, digging, loading, handling materials, driving pile, your BANTAM with its easy-change attachments is ready for it. Carrier, crawler and self-propelled models from 10,000 to 14,000 lb. crane capacity . . . 90 to 100 yd. per hour digging production.

There's good reason why BANTAM builds more of this kind of machine than all others combined! One demonstration will show you. See your BANTAM distributor or send coupon.



SCHIELD Bantam Co.

234 Park Street
Waverly, Iowa, U.S.A.

Please send me the BANTAM kit of specifications, information and applications in municipal work.

☐ Carrier mounted ☐ Crawler mounted ☐ Self-propelled

With information on these attachments:

☐ Crane ☐ Shovel ☐ Backhoe ☐ Dragline
☐ Clamshell ☐ Pile driver ☐ Backfiller ☐ Concrete bucket ☐ Grapple

Name _____ Title _____

Address _____

City _____ State _____

World's Largest Producers of Truck Cranes and Excavators

In Dallas ... 3 machines bury refuse at 5 widely-separated landfill dumps

Two 7-yard D Tournapulls and a Tournatractor, handling refuse disposal in all parts of the city, have proved invaluable to the Dallas (Texas) city management.

"These rubber-tired machines never have to wait for trailer transport," says Operator L. F. Keeler. "They get around to our 5 garbage-disposal areas fast under their own power."

Although the 5 sites are located as much as 15 miles apart in the city's outskirts, the 28 mph Tournapulls and 19 mph Tournatractor quickly drive job-to-job over city streets, often through heavy traffic.

Cover refuse delivered by over 145 trucks

At each dump, units excavate pits and stockpile material for cover. They also doze and compact refuse, blanket each day's collection of rubbish with earth, and grade and compact the final 2-ft. cover of topsoil. Daily cover eliminates unpleasant odors, fly and ratbreeding, and other nuisances of an open dump.

Superintendent of Sanitation G. C. Brinkley says: "I couldn't get along without these 3 LeTourneau-Westinghouse rigs. It would take 6 track-type tractors to replace them."

Less than 1/3 maintenance costs

Officials estimate maintenance of the rubber-tired equipment costs less than 1/3 as much as maintenance of track-mounted equipment.

Operator C. B. Wilson, who has run Dallas' first Tournapull since its purchase in 1951, says, "In all the time we've had this rig, it has needed only a few minor repairs! Its engine has needed no repairs. It costs little to run. And, it's easy to operate, too!"

All 3 units are still using original tires, which city officials say are in good condition.

Consider what faster job-to-job moves, plus less time for repair and maintenance, can mean on your landfill work. Get all the facts. Write or call us anytime!

Pushed 50 ft. by the Tournatractor, D Tournapull excavates pit where garbage will be buried. Load time in this clay-shale: 40 seconds. Stockpiling excavated material to be used as cover for refuse, Tournapull completes a 600' cycle in 2½ minutes. Output per machine averages 21 loads (105 pay yds.) per 55-min. hr. Pits are usually dug 10 ft. deep.

Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off.
DPT-810-P-z

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

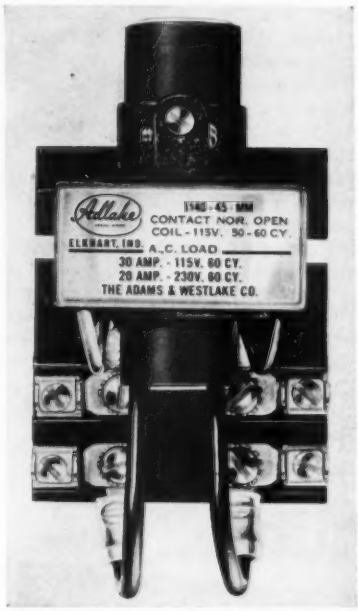
A Subsidiary of Westinghouse Air Brake Company

Purchasing

Mercury Relays to Operate and Protect Equipment

A great deal of automatic equipment is operated by relays. Traffic signals and flashers require them. They are used, also, in the control of indoor lighting and for controlling liquid level.

A catalog describes the new Adlake Mighty Midget relay. Being impervious to dirt, moisture and temperature



changes, this relay requires no maintenance. It is quiet and chatterless. Its mercury-to-mercury contact gives snap action with no burning, pitting or sticking.

For a copy of the new catalog, address THE ADAMS & WESTLAKE CO., ELKHART, IND., or you may use the Post Card on the insert following Page 50. Circle No. 791.

Two New Aids to Water Treatment

Combat backwashing difficulties in your water treatment plant with this new sub-surface washer introduced by the GRAVER WATER CONDITIONING CO., 216 W. 14TH ST., NEW YORK, N. Y. The sub-surface scrubber may be used effectively in demineralizers, zeolite softeners and water filters. It successfully breaks up obstructing solids, prevents fouling of filter beds, and permits effective backwashing at normal rates.

The Graver Water Conditioning Co. has also introduced an optional air lift

to replace the mechanical recirculator in its solids-contact clarifier, the Reactivator. In certain types of water treatment, the mechanical impeller may be replaced by this air lift arrangement to provide recirculation. The resulting aeration is particularly useful in installations requiring iron removal, and in many situations calling for oxidation.

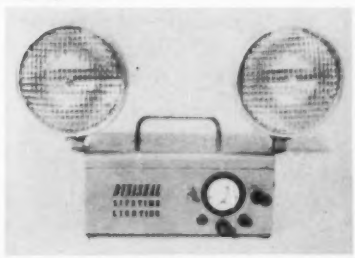
Further information on these two new aids to water treatment will be furnished by the manufacturer. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 799.

World's Largest, High-Rate Water Treating Plant

A new high-rate water treatment plant at Omaha, Neb., called the largest of its kind in the world, will be furnished with Infilco equipment, according to E. G. Kominek, general sales manager for Infilco Inc., Tucson, Ariz. The plant is being engineered by the Burns & McDonnell Engineering Co., of Kansas City, Mo., and will treat water from the Missouri River to supply the city's growing residential and industrial needs.

The contract for installing the water treatment equipment was awarded to Infilco by the Metropolitan Utilities District of Omaha. The new plant will occupy only one-half the area now used by an inadequate settling-basin type installation, yet, it is expected to double present capacity—140 mgd as compared to 72 mgd. Work on the project is now in progress, and the installation is scheduled for completion before the end of this year.

Emergency Lighting Equipment



This emergency lighting unit, powered by a nickel-cadmium battery, includes automatic charging facilities. It turns on automatically when electric power fails. It is described in Bulletins A46 and A71 from the Dynaseal Lighting Corp., 5 Hadley St., Cambridge 40, Mass.

More work, in less time at low cost

Watch the smoothness of a modern Adams motor grader at work. See how easily it blades at any work speed. Take the wheel, drive it as you would your automobile... through city streets, to 25 mph... in reverse to 13 mph. Stand or sit at the controls, notice how clearly you see grade and load on the blade. With convenient power-controls you raise, lower, revolve or extend the blade to any desired position.

The heavy, box-construction, one-piece frame of this husky grader is built to resist shock and stresses. Weight is distributed to make use of full power in all gears. Big, powerful engine starts quickly in any temperature; has lugging ability to move heavy loads in tough going. Note how constant-mesh transmission gives smooth speed through all gears.

8 Forward Speeds — to 25 mph

A speed for every grading operation. You get work done fast, save time moving job-to-job. Three additional "creeper speeds" (.23 to 1.82 mph) are optional. They make it easy to rip hard-packed roads and old asphalt, root out unseen roots and stones without severe shocks, make for accurate finishing in tight places. *No other grader offers this wide range of operating speeds.*

Rugged scarifier (optional) rips up gravel, crushed stone, blacktop, sheet asphalt road and street surfaces. Has replaceable points.

4 Reverse Speeds — to 13 mph

Wide range of reverse speeds saves time on shuttle-grading and mixing, backing to buck snow drifts, etc.

Double-action Hydraulic Brakes. Service brake applies braking action to transmission as well as wheels; surer, safer stops, with less pedal effort.

Rubber-Mounted Engine. Vibration is not transmitted through floor to machine and operator. Means less maintenance, better efficiency.

See ADAMS before you buy

Select your next motor grader on the basis of *performance*. Ask your LeTourneau-Westinghouse Distributor for performance facts and specifications. Learn why Adams graders do *more* work, in *less* time, at *lower* cost.

A Size ADAMS for every need

Model 330— 80 hp diesel engine, 20,500 lbs.
Model 440—104 hp diesel engine, 21,500 lbs.
Model 550—123 hp diesel engine, 23,500 lbs.
Model 660—150 hp diesel engine, 27,730 lbs.
TraveLoader — A high-speed, heavy-duty, self-propelled, belt-type loader for picking up materials and loading into trucks from windrows or stockpiles. 55 hp, 17,500 lbs.

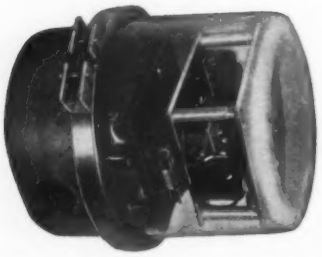
AG-2-P-z

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

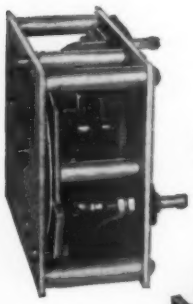
A Subsidiary of Westinghouse Air Brake Company

TIME-O-MATIC FLASHERS JACK MOUNTED

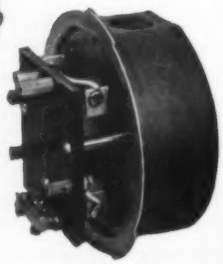


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

"A Sign of Good Control"

TIME-O-MATIC CO.
1108 Bahls Street
Danville, Illinois

Purchasing News

Large-Capacity Filter Protects Water Pumps

All you do to install the new Model B "Flo-Clear" water filter is to screw it onto the end of any supply pipe where water is being pumped from a lake, stream, well, cistern, pond or pool. The filter will trap and filter out all suspended foreign matter—sand, grit, gravel, algae and insects—which might otherwise damage the precision working parts of a pump. It is available in coarse, medium and fine grades from FILTROS INC., E. ROCHESTER, N. Y.

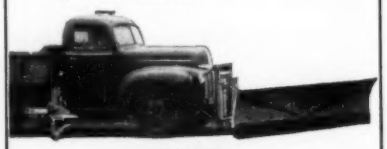
The new filter is similar in operation and efficiency to the Model A "Flo-Clear" introduced earlier this year. However, it has greater capacity, needs cleaning less frequently, and is easier to disassemble. The Model B consists of a porous ceramic cylinder held together by cast aluminum caps. It does not feature any parts or materials that will deteriorate or wear out.

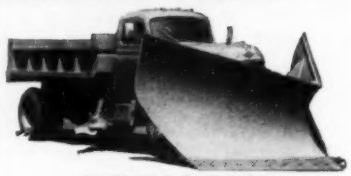
A detailed description of the new "Flo-Clear" filter is available directly from the manufacturer, or you may use the Post Card on the insert following Page 50. Circle No. 798.

Unbeatable Combination!

- **Root Underbody Scraper**
- **Root Sno-Plow**

The underbody scraper is efficient, economical, year-round equipment for street, alley, parking lot maintenance, snow and ice removal, etc. Root Sno-Plows for faster, better snow removal. 25 models of one-way tripping and V-type Sno-Plows.





SEND FOR CATALOG

Better Road Machinery Since 1891

ROOT SPRING SCRAPER CO. GET TO THE ROOT OF THE PROBLEM

545 WEST NORTH ST., KALAMAZOO, MICH.

WANTED

Assistant to City Engineer and to the City Manager

The City of Coronado offers an excellent opportunity for this position. Incumbent will work directly under the City Manager.

Applicants must have had at least two years' experience in responsible professional engineering work.

Give full information as to education and submit a sample drawing.

Write:

Mrs. Sue Blackwood
Personnel Clerk
City of Coronado, California

Storage and Handling of Lubricants

Every plant, regardless of how large or small its lubricant requirements, has a storage and handling problem. The problem is more or less specific for each plant. A scheme which is suitable at one place may be unsatisfactory at another. However, there are some basic rules and some "do's" and "don'ts" which apply to all storage and handling of lubricants. A number of these rules are presented below.

Do not drop drums from a truck or freight car to a cushion, such as a rubber tire. Drum seals can be split and leakage will occur.

If there is no unloading platform, use a ramp and slide drums endwise to ground level. A lift truck may also be used.

For storage area, select a central location where the atmosphere is free from dust and vapors.

Store lubricants indoors, with drums placed on their sides on racks. Don't lay them on the ground. When placed upright on end, rain wate. may accumulate and be sucked into the drum by normal breathing action. If stored outdoors on end, even temporarily, a cover should be available to place over the drum in the event of inclement weather.

Indoor storage area should be fireproof and fitted with suitable drains.

Cleanliness and orderliness are musts.

Don't store more products than necessary. The lubricant supplier will be glad to make a plant survey of lubrication requirements with a view to keeping the number of different products to a minimum.

Exercise extreme care in heating products that have been exposed to low temperatures. Never apply direct heat to the exterior of the drum.

Whether the plant be large or small, the dispensing of lubricants should be handled by personnel familiar with lubricant requirements. This is a vulnerable link in the chain of operations that connect the source of the lubricant with its application.

For an extended study of this subject, request a copy of "Lubrication" for September, 1955 from THE TEXAS CO., 135 E. 42ND ST., NEW YORK, 17, N. Y. Write directly, or you may use the Post Card on the insert following Page. 50. Circle No. 772.

TAX EQUALIZATION APPRAISALS

THE J. M. CLEMINSHAW CO.

Appraisers

Nationally Recognized for
Municipal and County Revaluation
Since 1923

An Authoritative Professional Service
Universally Accepted by Assessing Officers
and the Taxpaying Public

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Main Office:
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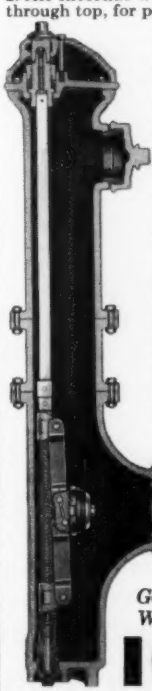
Plainville, Conn.	11 Williams St.	Sherwood 7-0676
Milwaukee, Wisc.	2014 Sunset Court	Tel. Spring 4-6680

In hydrants, too,
it's important to have
Unobstructed flow

SINCE 1909

Look at a cutaway view before you buy any hydrant! You'll be surprised how few provide an absolutely unobstructed waterway! And *no one* but Iowa offers you *all* this and much more—

1. Provides full and unobstructed waterway for maximum flow from main to nozzle.
2. All internal working parts removable through top, for periodic inspection.



3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.
4. Main valve holds tight in closed position so that—should hydrant be damaged—no loss of water, or flooding, will occur.
5. Two-piece operating nut eliminates binding or distortion of working parts (sometimes caused by expansion and contraction) — makes Iowa hydrants easy to open and close at all times.
6. Complete drainage by sure acting drain, prevents freezing.
7. Fully bronze mounted throughout—meet all requirements of A.W.W.A. —have proved their ruggedness and reliability to waterworks men everywhere.
8. Available with any type of connection.

Get ALL the facts! Write

IOWA
VALVE COMPANY
Oskaloosa, Iowa
A subsidiary of James B. Clow & Sons

Crawler Tractor Offers "Power Turn" Steering

A new steering principle for crawler tractors combining all of the advantages of controlled differential steering with those of clutch steering, is featured in the new Model OC-18. The new "Power-Turn" steering permits the tractor operator to make spot or gradual turns of any angle. Without shifting, he can decrease speed by 38% with an increase in drawbar pull or push of up to 60%.

Easy-to-operate, the Model OC-18 features four levers providing full maneuverability. These levers are operated by a touch of the finger. The two inside levers are for the Power-Turn's planetary reduction drive. Individually they provide gradual turns. The outside levers are for spot turns. There is both hand and foot positive braking.

The new crawler tractor weighs 32,500

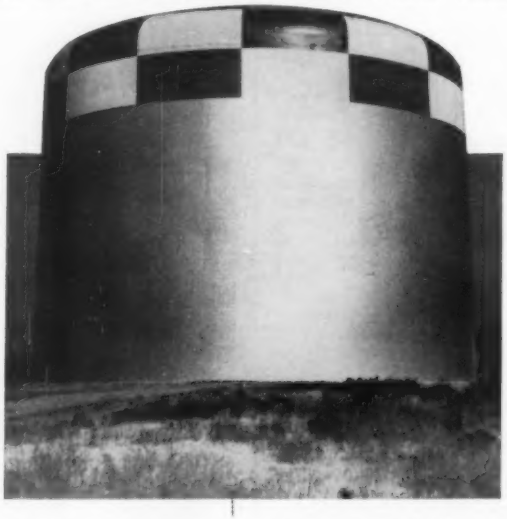
pounds and is powered by a diesel engine delivering 161 hp. It is available with a complete line of matched allied equipment.

Literature describing the Oliver OC-18 "Power-Turn" steering is available from THE OLIVER CORP., 400 W. MADISON ST., CHICAGO 6, ILL. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 789.

Specify "ROSS" Automatic Valves

FOLLOW THE LEAD OF THE ENGINEERS WHO SPECIFIED CONTROLS FOR THIS STANDPIPE FOR THE "SOUTH PITTSBURGH WATER CO." PITTSBURGH, PA.

WATER LEVEL IN THIS, "AMERICA'S LARGEST STANDPIPE," IS CONTROLLED BY A 20-INCH ROSS DOUBLE-ACTING ALTITUDE VALVE.



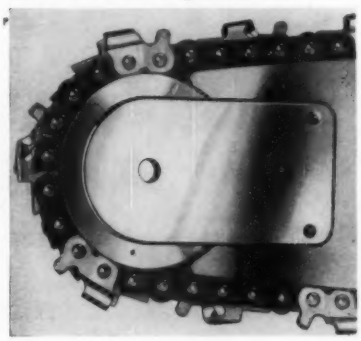
Pioneers in the manufacture of automatic hydraulic control valves, Ross has served the industry since 1879.

Valves manufactured include:

ALTITUDE—BACK PRESSURE—FLOAT
PRESSURE REDUCING—SURGE RELIEF—COMBINATION
with Hydraulic and Electric Pilot Controls

Ross Valve Manufacturing Co., Inc.
8 OAKWOOD AVE. TROY, N. Y.

Roller Bearing Speeds Chain Saw Operation



"Snap" this new roller bearing nose guide onto any chain saw, and the unit will cut faster with less wear. The snap-on roller bearing minimizes friction between the fast-cutting chain and guide bar. By free-wheeling the chain, it is said to produce up to 20% more cutting horsepower.

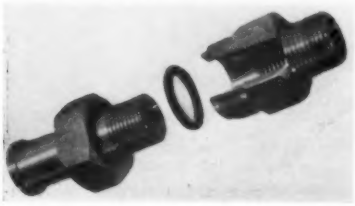
The roller bearing is easily pressed into a slot that is machined into the nose of the guide bar. It is quickly removed by a light tap of a hammer on a block of wood pressed against the bottom edge of the bearing's flange. Any make guide bar can be machined to receive the bearing.

Snap-on roller bearings are furnished in diameters of 2½ and 3½ inches for use on bars up to 54 inches long. They are also available to fit bars of any thickness. A template for machining the

bar will be supplied with each bearing.

A detailed description of the new roller bearing may be obtained from the MALL TOOL CO., 7735 S. CHICAGO AVE., CHICAGO 19, ILL. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 779.

New Type Meter Coupling



A new type of coupling, designed to provide faster, easier and more convenient setting of water meters, has been added to the Jasco line of meter couplings. The new unit is constructed with screwed threads to permit insertion of the meter on the valve side if desired. It has also been designed to permit use with copper connections, using copper tubing.

The Jasco adjustable meter coupling provides a ½-inch lateral movement in the pipe connection to the meter, eliminating an annoying expense in meter setting work. When in place, the coupling forms a rigid, water-tight connection to the meter.

For additional information on the new coupling, write JASCO PRODUCTS CO., 8102 BONNER DR., HOUSTON 17, TEX., or you may use the Post Card on the insert following Page 50. Circle No. 783.

Ottawa Steel Division to Make Tracto-Lift

The recent purchase of the Tracto-Lift Co., Kansas City, Mo., by the Ottawa Steel Division of L. A. Young Spring & Wire Corp., is announced by Edwin L. Johnson, general manager of Ottawa Steel. The Tracto-Lift, a heavy-duty fork lift truck, will be manufactured in the division's home plant at Ottawa, Ill. Ernest C. Jones, former president of the Tracto-Lift Co., will join Ottawa Steel as a factory representative in the fork lift division.

Manufacture of the Tracto-Lift will supplement Ottawa's product line of hydraulically operated tractor-loader equip-

(*Continued on page* 200)

SAVE

UP TO 75%

ON YOUR COST OF LOADING AND HAULING BRUSH!

In actual service, rugged ASPLUNDH CHIPPERS eliminate 3 out of 4 truckloads of brush to the disposal area. (*1 truckload of chips equals at least 4 of brush*).

And chips can be a valuable by-product. Use them for mulching, shrub beds, erosion control, walks, and cushion material in playground areas.

An ASPLUNDH CHIPPER can help you in many *ways. For the whole story, clip and mail this coupon,* today.

ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa (*Dept. C*)

Please send me FREE Chipper Booklet at once:

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

BY ACTUAL TEST THE FASTEST CHIPPER MADE

(*Continued from page* 199)

ment and other types of hydraulic construction machinery. The versatile fork lift truck is especially designed for outdoor use in moving bulky materials over rough or muddy terrain. It is available in sizes ranging from 1,000 to 15,000 pounds capacity, with fork lengths varying from 30 to 108 inches.

Detailed information on the Ottawa Tracto-Lift may be obtained from the OTTAWA STEEL DIV., L. A. YOUNG SPRING & WIRE CORP., P. O. BOX 309, OTTAWA, KANS. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 778.

New Tandem Roller

Construction and maintenance jobs on streets, airports, playground and parking lots can be put on an efficient and economical basis with this new tandem roller. The Model 55 features an even distribution of ballasting in both steel and water, providing from 1½ to 2½ tons of compaction. It is available with a ramp-type trailer for quick transportation from one location to another.

The steel ballasts of the Model 55 are removable in 70-pound sections for a

variety of compaction ranges. This facilitates a large number of jobs from light patching to wide roll dimensions for smooth finishing. On the driver's side, the unit rolls to within two inches of walks and other obstructions, and an 8-inch ground clearance provides flush rollings to curbs.

The new tandem roller is made by STANDARD STEEL WORKS, NORTH KANSAS CITY, MO. For full details, write the company directly, or you may use the Post Card on the insert following Page 50. Circle No. 775.

MAKE JOINTS

WITH A RATCHET WRENCH

McWANE-PACIFIC SUPER DELAVAUD

MECHANICAL JOINT CAST IRON PIPE

Mechanical Joint has rapidly become the leading type joint for cast iron pipe for water or gas. A McWane-Pacific Boltite mechanical joint pipe line can be laid fast by untrained workmen, using only a ratchet wrench to make the joints. No lead pot, no calking tools.

The Mechanical joint is designed on the stuffing box principle—a thick rubber-compound gasket, triangular in cross section, being compressed by a bolted gland or follower ring. The joint is bottle tight, but flexible to allow settlement, expansion or contraction of the pipe line. Mechanical joints are interchangeable with fittings, valves, hydrants and pipe made by all leading manufacturers.

For complete information, wire or write McWANE CAST IRON PIPE COMPANY, Birmingham, Alabama, or PACIFIC STATES CAST IRON PIPE COMPANY, Provo, Utah. (Sales Offices in principal cities.)

McWANE PACIFIC PIPE *Lasts for Centuries*

Report Strong Trend to Water Metering

A spiraling demand for water meters in many unmetered communities throughout the country, is reported by Lloyd A. Dixon, Jr., vice-president of the Meter and Valve Div., Rockwell Mfg. Co., Pittsburgh 8, Pa. Four important reasons are advanced for the current trend: fast-rising per capita use of water, a continued high level of new housing construction, increasing evidence of water shortage in many regions, and the higher costs of water processing.

Tests in many areas, says Mr. Dixon, have proven that metering cuts per capita water use in half, by "making economy-minded home owners think twice about wasting water. Taxpayers in unmetered communities are being made aware that the cost of wasted water is coming out of their own pockets."

Additional news from Rockwell tells of a new expansion program to keep pace with a rising demand for natural gas. According to Willard F. Rockwell, Jr., company president, the gas industry's 1956 requirements for valves, meters, regulators and complex flow re-

cording instruments should be greater in the coming year than at any time since the Korean War.

Two new 100,000-square-foot Rockwell plants have gone into construction in recent months—one at Russellville, Ky., the other at Porterville, Calif. In addition, the company is negotiating for the purchase of a third plant recently completed by another company.

Improved Mixer Makes Hot Asphalt Patches

The Wylie Mfg. Co. has improved its Model 30-R Heat-A-Mix to include a new forward-and-reverse transmission, making it possible to retain asphalt in the pugmill until it reaches the exact temperature required. This efficient tailgate asphalt-patch mixer consists of a high-capacity pugmill and a material heater. It is powered by its own gasoline engine and propane or kerosene heating system.

In addition to the new transmission, the Heat-A-Mix features a newly-designed heat-jacketed pugmill which is "flash-proof," and eliminates the possibility of direct flame coming in contact with the asphalt. The entire unit has been furnished with removable, adjust-

able legs, and can be quickly transferred from one truck to another without a crane or hoist.

Detailed information on the Model 30-R may be obtained from the WYLIE MFG. CO., OKLAHOMA CITY 12, OKLA. Write directly, or use the Post Card following Page 50. Circle No. 770.

FROM THE WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS

Let 1 instrument do all your work...

THE Dualtronic MODEL LC-5

Here is the instrument for which Municipalities have been looking... ONE Instrument that locates Pipes, Leaks and Valves, yet costs no more. Model LC-5 not only saves you money but does the job accurately and dependably. Ruggedly constructed. Compact. Lightweight. Simple, one man operation. Model LC-5 is fully guaranteed.

plus these BIG features:

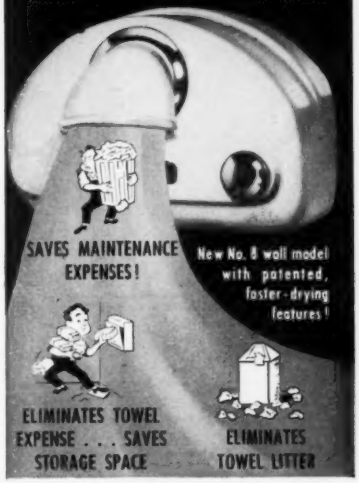
1. Use as Pipe Locator, Leak Detector, Valve Locator.
2. Pin-Point Detection.
3. Automatic on-off and power switching.
4. Crystal microphone.

The GOLDAK Company
Leading Electronic Manufacturers
Since 1933
1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WRITE FOR COMPLETE BROCHURE

SAVE Maintenance AND Towel Costs WITH

Sani-Dri ELECTRIC HAND OR HAIR DRYERS


SAVES MAINTENANCE EXPENSES!
New No. 8 wall model with patented, faster-drying features!
ELIMINATES TOWEL EXPENSE . . . SAVES STORAGE SPACE
ELIMINATES TOWEL LITTER

Save valuable maintenance time and eliminate continuing towel expense. New high-speed Sani-Dri provides quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to your washroom sanitation and drying problem . . . and SAVES UP TO 85% OF YOUR WASHROOM COSTS!

NEW FASTER-DRYING FEATURES!

- *New faster-drying heating element!*
- *New smaller, oval nozzle produces more concentrated stream of air!*
- *Instant starting push-button switch with automatic shut off!*

All Sani-Dri Electric Dryers are GUARANTEED, and have carried the Underwriter's Seal of Approval for over 18 years!

New Brochure!

Shows all Sani-Dri hand and hair dryer models with new high-speed drying features . . . plus installation pictures. Write today!

Distributors in principal cities

The Chicago Hardware Foundry Co.

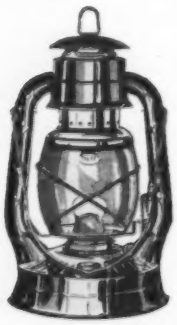
"Dependable since 1897"

5116 Commonwealth Ave., North Chicago, Ill.

by **DIETZ**

WARNING LIGHTS

No. 87 Torch—up to 30 hours of steady, weather-resistant burning. Ideal for excavations, road shoulders, rubbled areas.



"Little Wizard"—up to 30 hours of wind-defying light that burns bright, stays bright to the very last drop!

Sound, highly visible safety lighting that's dependable in all weathers . . . *How much does it cost?*

Seldom more than ¼th of one percent of your cost for the project!

Yet serious accidents due to inadequate safety lighting *can* cause an upward revision in insurance rates that makes *good* lighting seem cheaper than ever!

When you protect the public, you protect *your pocketbook*—or the one you're responsible for.

Dietz does it . . . for pennies per day!

Here is the most complete line of long-burning kerosene lanterns and torches on the market.

Here is *dependable* night-long protection for drivers . . . for pedestrians . . . and for *you*!

● **Ask your safety lighting man to take a good look at the *DIETZ* line of safety lanterns and torches, at your distributor's or hardware dealer's. R. E. DIETZ COMPANY, 100 Leavenworth Ave., Syracuse 1, New York.**

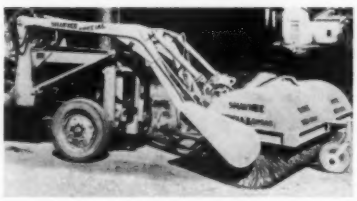
DIETZ

OVER A CENTURY OF SAFETY LIGHTING

Purchasing

Street Sweeper Attaches to Front-End Loader

Easily attached to almost any make front-end loader, the new Shawnee street broom attachment is operated by a hydraulic motor with controlled revolutions ranging from 150 to 350 per minute. It can be angled up to 30° right

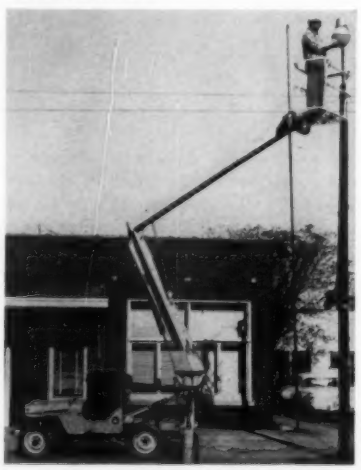


or left. The India Palm Broom core measures 7 feet wide and 24 inches in diameter.

Equipped with a "stabilizer wheel," the new attachment eliminates bouncing on rough streets, and is quickly installed and removed from the tractor in minutes. It is available from the SHAWNEE MFG. CO., 1947 U. TOPEKA AVE., TOPEKA, KANS.

For additional data, write the manufacturer directly, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 776.

Truck Tower Extends to 60 Feet



The tower is quickly attached and easily removed from the supporting truck.

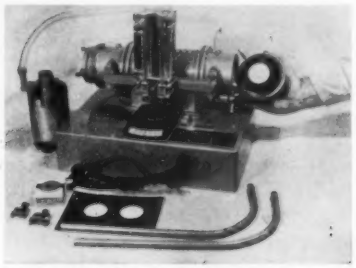
Aerial towers designed for mounting on trucks are offered in three standard sizes. Platform heights reach 30, 45 and 60 feet respectively. Each is available

with wheeled outriggers, or with a spring lock-out table.

All models feature one-hand control from the platform, an independent power source, welded steel booms, and 280° rotation. With the boom resting over the truck cab, the towers can be moved smoothly through traffic at regular speeds.

For additional information on the new Strato-Tower attachment, write the STRATO-TOWER DIV., ELKHART WELDING AND BOILER WORKS, INC., 2132 S. MAIN ST., ELKHART, IND., or you may use the Post Card on the insert following Page 50. Circle No. 788

Measures Air Pollution Scientifically



New Dill dust-spot tester.

Additional help in taking the guess work out of air-pollution abatement work is currently being furnished in the form of two new dust samplers.

One unit is the A.I.S.A. automatic smoke sampler, and the other is the Dill dust-spot tester Both are able to measure particles that are not visible to the eye, but that cling to walls and, in time, create noticeable dirt. They are proving of special value to city and state health departments for air pollution studies.

The new sampling equipment is made for accuracy and dependability by the RESEARCH APPLIANCE CO., 143 CEMETERY LANE, PITTSBURGH 9, PA. For additional data, write the manufacturer directly, or you may use the Post Card following Page 50. Circle No. 795.

Portable Rig for Concrete Gunning Work

Use this new portable rig for all types of concrete gunning work, in rehabilitating concrete structures, rebuilding curbs and bridges, and constructing or rebuild-

(*Continued on page* 204)

KENNEDY A.W.W.A. GATE VALVES
for a wide range of water works requirements

KENNEDY Fig. 56, A.W.W.A. Standard Double-Disc Gate Valve

Every KENNEDY A. W. W. A. valve is JOB-FITTED . . . ruggedly constructed, especially designed and engineered for the job it has to do. Conforming to A. W. W. A. standards in every detail, these KENNEDY valves give you many extra-value features, too. The iron itself, for example, it 50% stronger than ordinary cast iron to keep KENNEDY valves doing their job year in and year out.

KENNEDY manufactures a complete line of water works valves. Sizes range from 2" to 60" giants. Types include non-rising stem and outside-screw-and-yoke valves. And for your special needs there's a wide variety of gearing arrangements, controls, accessories and end connections available. Just tell KENNEDY your needs and they'll be filled.

Specify KENNEDY valves and fire hydrants for your community and you can be sure of dependable, trouble-free service with "built-in" longer valve life. That means greater economy and protection for decades ahead.

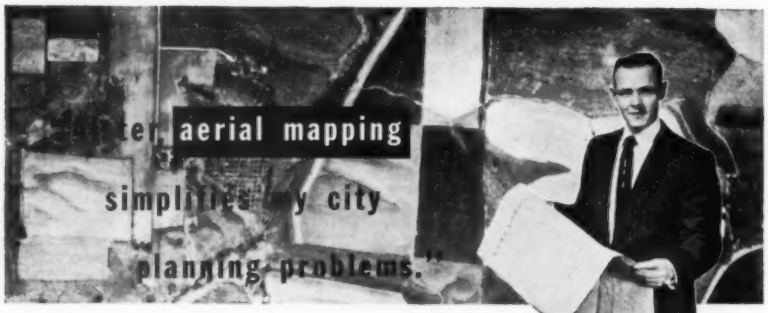
• KENNEDY VALVES ARE JOB RATED

Write for Bulletin 106

THE KENNEDY VALVE MFG. CO. ELMIRA, NEW YORK Est. 1877

VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES



—BURL A. PARKS City Planning Engineer, Davenport, Iowa

"Planning the extension of our street system beyond corporate limits would have been impossible without the topographical maps Alster & Associates made for us from aerial photography," writes Davenport's City Planning Engineer. "The maps of fringe areas make it simple to choose best locations for street grades, drainage, and sewer extensions and to examine proposed land subdivisions." *Learn how Alster mapping can simplify your survey problems.*

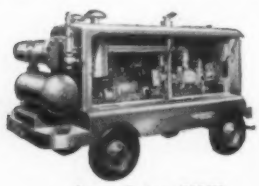
Free booklet tells how Alster methods cut survey costs up to 75%, get construction started weeks earlier!

Dept. A-1
6135 Kansas Ave., N.E., Washington 11, D.C.
29 E. Madison St., Chicago 2, Illinois

ALSTER & ASSOCIATES, INC.
AERIAL SURVEYS

Trenching 7 miles of street, this Jaeger "125" Roto ran two 80 lb. breakers to line-cut and break a 7" top of asphalt over brick—averaged 1200 sq. ft. per 8 hr. day—used only 1½ gals. of fuel per hr.

Jaeger "125" Rotary speeds street work



Jaeger Rotary "600"

Instantaneous air delivery, under close and smoothly modulated control, enables the Roto 125 to maintain 100 lbs. minimum pressure under all demands up to 125 cfm. High efficiency results in slower speed operation, less fuel consumption, longer engine life than any other rotary. See your Jaeger distributor or ask for Catalog JCR5.

THE JAEGER MACHINE COMPANY 505 Dublin Ave., Columbus 16, Ohio

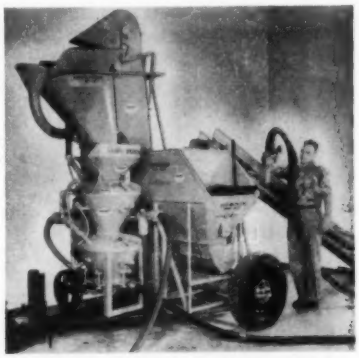
LOADER • PUMPS • MIXERS • TRUCK MIXERS • PAVING MACHINES

Purchasing

(*Continued from page* 203)

ing swimming pools. The rig is made up of three units—a Nucretor concrete gun; a Mix Elvator automatic proportioning, dry mixing and elevating machine; and a sand loader. The latter piece of equipment operates from a power take-off from the drive mechanism of the Mix Elvator.

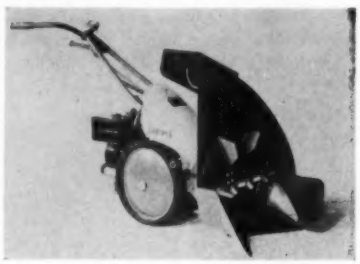
The new Nucretor features a capacity of 2 to 8 cubic yards per hour, and is



equipped with a new Airplaco gunning nozzle. The entire rig may be hitched to either an air compressor or, if the compressor is mounted on a truck, to the trailer hitch of the truck.

Additional information on the complete rig or any of its separate features, may be obtained from the AIR PLACEMENT EQUIPMENT CO., 1009 W. 24TH ST., KANSAS CITY, MO. Write directly, or you may use the Post Card on the insert following Page 50. Circle 793.

Improved Sidewalk Snow Plow



A special raker bar that quickly cuts up heavily packed or deeply piled snow has been added to the Jari Champion snow thrower. The raker bar consists of six flat steel teeth mounted on the plow's whirling fan. Each tooth travels in a separate plane, cutting the packed snow into small pieces that are easily thrown to one side by the fan.

The self-propelled sidewalk plow is

powered by a 4-cycle, 2½-hp gas engine. It is designed to clear a path 20 inches wide at the rate of 520 shovelfuls per minute. Thrown snow is spread over a 30-foot strip to prevent big banks, and the throwing angle is adjustable.

A detailed description of the improved snow plow may be obtained from JARI PRODUCTS, INC., DEPT. KP, 2990 PILLSBURY AVE., MINNEAPOLIS 8, MINN. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 787.

Handles 55-Gallon Drums Quickly and Easily

Now you can handle from three to six 55-gallon drums at a time for fast, easy stacking with the new Downs automatic vertical drum grab. The automatic device permits the operator to load and unload the grab by raising and lowering the hoist line. It is available from the DOWNS CRANE & HOIST CO., 540 W. VERNON AVE., LOS ANGELES 37, CALIF.

The new vertical drum grab is designed to handle any standard 55-gallon drum with a uniform shell or body diameter of 22½ inches. Grabs are also available for special size drums.

A detailed description of the new drum grab may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 50. Circle No. 800.

FWD Concludes Traveling Truck Show

The Traveling Truck Show of the Four Wheel Drive Auto Co., part of FWD's 45th Anniversary celebration, wound up its tour recently after 12,751 miles of travel from coast-to-coast. Exhibited were four new heavy-duty trucks and a colorful ammunition carrier. The latter was made for the U. S. Army and used in France during World War I.

New 4-wheel-drive pumper fire engine is designed for small cities as well as metropolitan communities.

The FWD caravan included the latest equipment for fighting fires, grading and maintaining roads, and constructing cross-country power lines. Featured were an economical, 4-wheel-drive pumper fire engine for large and small communities; a versatile utility truck equipped with a front-mounted derrick and line body; a general highway maintenance unit with a 6-yard dump body, underbody blade, and new sander; and a new 6-wheel-drive, heavy-duty truck.

Full information on any of the low-cost equipment exhibited during the recent truck show, may be obtained from the FOUR WHEEL DRIVE AUTO CO., CHICAGO 1, ILL. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 802.

STEWART

Specialists

Sewer and pipe cleaning equipment

- SEWER RODS
- SECTIONAL STEEL RODS
- COMPLETE SEWER CLEANING MACHINES
- BRACES AND GUIDES
- BUCKETS, ROOT CUTTERS AND DRAG TOOLS

Save the expenses of experimenting. Consult Stewart for any problem in the SPECIALIZED FIELD of pipe cleaning

SINCE 1901

W. H. STEWART, INC.
P.O. Box 767, Syracuse, New York

SPREAD SUNSHINE ALL WINTER . . .

USE THE FAMOUS "Scotchman" METHOD OF SNOW AND ICE CONTROL

Saves time, money, labor . . . and saves lives! The rugged, efficient SCOTCHMAN blower-type spreader can be attached to any truck in 5 minutes, removed in less. Salt-treats highways and streets 8 times faster than old-fashioned abrasive spreaders . . . assures bare, bone-dry pavements . . . makes plowing easy. Spreads from 100 lbs. to 2000 lbs. per mile . . . as little as ½ ounce per sq. yard . . . in the famous "Bird-Shot" melting pattern. Ask your dealer to demonstrate . . . write for complete details.

TARRANT MANUFACTURING CO. TARCO APPLIANCES SARATOGA SPRINGS, N.Y.

TARRANT MFG. CO.

27 JUMEL PL. SARATOGA SPRINGS, N.Y.

COST CUTTING

HOW TO PREVENT PIPELINE COLLAPSE

• A break in the line or a quickly opened valve often releases water at terrific velocity. Internal pressure falls below atmospheric. Thin-walled pipelines collapse!

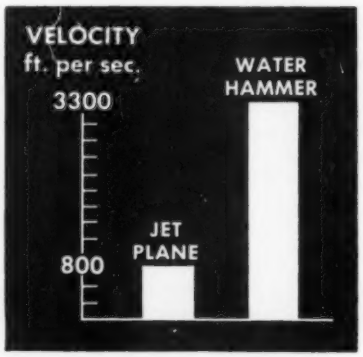
Simplex Air Inlet Valves quickly admit air, prevent a vacuum, protect lines from collapse. They also vent air when lines are being filled to stop binding, increase efficiency. Standard 4" to 10" sizes. BULLETIN 1202

Pipeline collapse due to vacuum

HOW TO PREVENT PIPELINE RUPTURE

• Sudden closure of a valve can set up hammer that travels 4 times faster than the fastest jet . . . fractures valves, ruptures long lines.

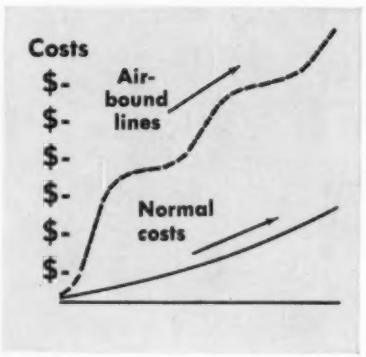
Simplex Type CCAV Valve ends these dangers. It controls transfer time, and releases both air and water to prevent damage. And lets in air to prevent vacuum collapse if breaks occur or lines are drained. BROCHURE



HOW TO CUT PUMPING COSTS

• When air lodges in high spots, it cuts the effective area of pipe, creates a friction head, lowers pumping capacity . . . and may cause water-hammer.

Simplex Air Release Valves end these troubles. They vent air automatically to eliminate binding, increase efficiency, cut pumping costs. Simple, rugged 2" size, for up to 250 psi., costs you little, quickly pays for itself! BULLETIN 1200



WRITE for Technical Bulletins! Simplex Valve & Meter Company, Dept. AC-1, 7 E. Orange St., Lancaster, Pa.

Accurate instruments and controls since 1904

SIMPLEX®

VALVE AND METER COMPANY

Purchasing

New Stair-Climbing Truck

The Stair Cart, a versatile hand truck that "climbs stairs," is offered by VALLEY CRAFT PRODUCTS, INC., 750 JEFFERSON AVE., LAKE CITY, MINN. The unit is equipped with a special ratchet mechanism, enabling it to roll up stairs, step by step, as the operator pulls a cable drive. This doubles the load a man can roll up

steps, and triples the load he can move down stairs or ramps.

Two-wheel safety brakes on the new Stair Cart prevent serious accidents when descending ramps or stairs. The unit also features interchangeable shoes, sealed ball bearings and a steel tube construction.

The new hand truck is available in six models with varying capacities, including a special barrel cart and a complete welding cart. Write the manufacturer directly, or use the Post Card following Page 50. Circle No. 801.

Demand for Fluoridation Increases Production

Since over 1,100 cities have adopted fluoridation as a dental prophylaxis, and the number promises to grow, the demand for fluoridation chemicals has increased. The Davison Chemical Division of W. R. Grace & Company, in response to the demand for hydrofluosilicic acid, has completed installation of new plants in Lansing, Mich., Columbus, Ohio, and Nashville, Tenn. These new production facilities will bring the company's total capacity for the acid to over 14,000 tons annually.

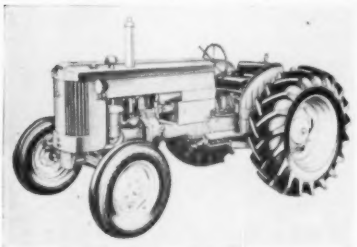
Although Davison also supplies fluoride salts for fluoridation, all important plants completed or planned are designed for the use of the acid. The liquid form of this chemical simplifies its addition to water supply and makes it preferable to the dry forms. The acid is derived as a co-product from the company's production of superphosphate.

For details about this product write the DAVISON CHEMICAL COMPANY, DIVISION OF W. R. GRACE & COMPANY, BALTIMORE 3, MD., or you may use the Post Card on the insert following Page 50. Circle No. 803.

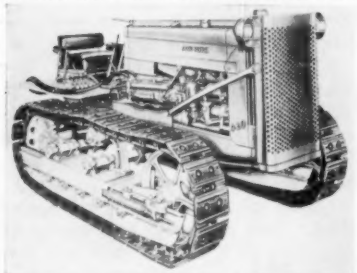
New Tractor Line Features More Power

A new line of handyman tractors—the John Deere "420," crawler and wheel type—have been put into production to replace the "40" tractors. The new machines, however, offer approximately 20% more power from the same two-cylinder, valve-in-head engine which the older models featured. In addition, although no official test has been made, the company estimates that this additional power will increase the belt horsepower to 30 and the drawbar horsepower from 20 to approximately 25.

This additional power is attained primarily by changes in the bore, cylinder head, valve mechanism, manifolding, carburetion, and the new compression ratio of 7 to 1. The thermo-siphon system is replaced by a new pressurized cooling system with water pump. Pistons, too, have been improved.



The new John Deere Wheel-Type Tractor has a hundred and one uses. . . .



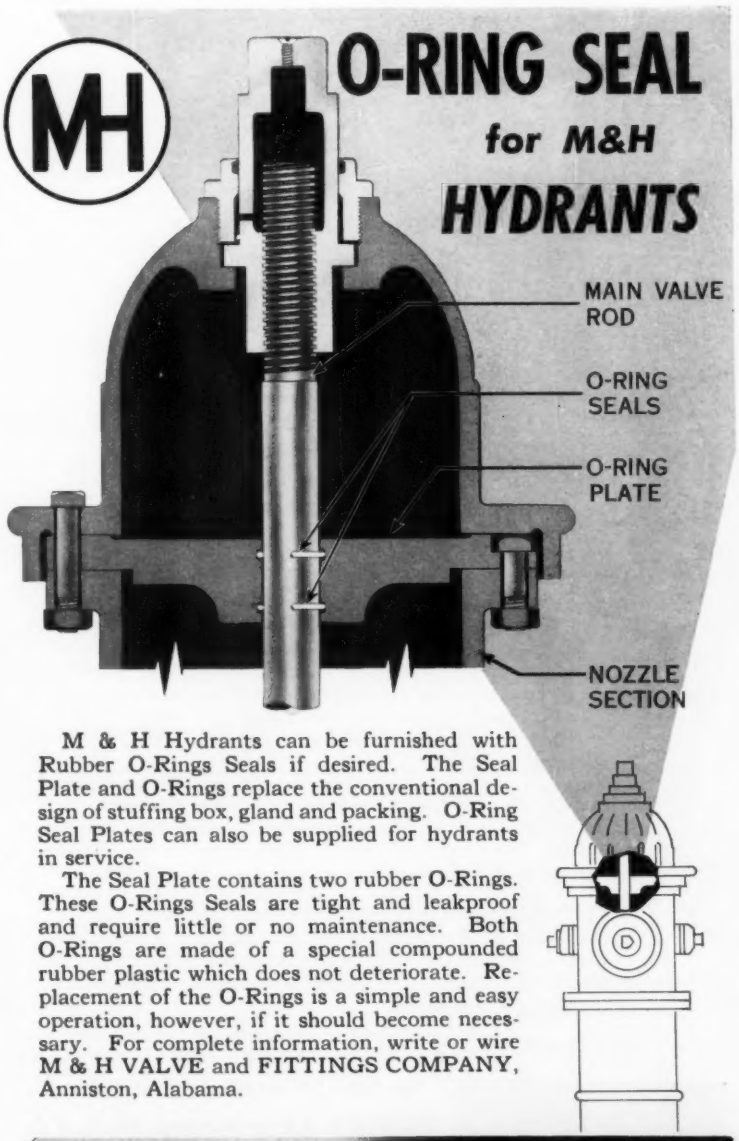
Its twin, the crawler tractor is a "little giant" in its daily work capacity.

The new models feature low, compact, rugged construction; quick maneuverability; "live" hydraulic systems; adaptability to a wide variety of work; low initial and operating costs; and ease of maintenance.

For additional information write JOHN DEERE AND COMPANY, MOLINE, ILL., or you may use the Post Card on the insert following Page 50. Circle No. 805.

Engineers' Painting Guide

An easy reference manual for writing specifications is the 28-page guide now available from the Inertol Company, Inc., 480-490 Frelinghuysen Ave., Newark 5, N. J., or 27 South Park, San Francisco 7, Calif. It includes indices which tell the reader how to paint specific units, and presents specifications in handy chart as well as written form. Write directly, or use Post Card following Page 50. Circle No. 804.



M & H Hydrants can be furnished with Rubber O-Rings Seals if desired. The Seal Plate and O-Rings replace the conventional design of stuffing box, gland and packing. O-Ring Seal Plates can also be supplied for hydrants in service.

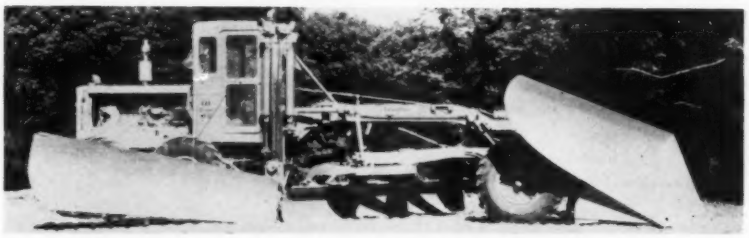
The Seal Plate contains two rubber O-Rings. These O-Rings Seals are tight and leakproof and require little or no maintenance. Both O-Rings are made of a special compounded rubber plastic which does not deteriorate. Replacement of the O-Rings is a simple and easy operation, however, if it should become necessary. For complete information, write or wire M & H VALVE and FITTINGS COMPANY, Anniston, Alabama.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Attachments for "Cat" Motor Graders

Cities can increase the usefulness of their No. 12 and No. 112 motor graders with this new set of hydraulic attachments. Included are a new, shiftable moldboard, a snow plow and bulldozer mounting, and a snow wing, all hydraulically operated. Controls for these attachments are conveniently located inside the cab of the grader.

The new shiftable moldboard is concave in shape to allow for the hydraulic cylinder. The cylinder features a 48-inch stroke with 27 inches of travel to the right, and 21 inches to the left. Standard moldboards will be equipped with a slide bar in place of the cylinder, facilitating manual offset of the blade.



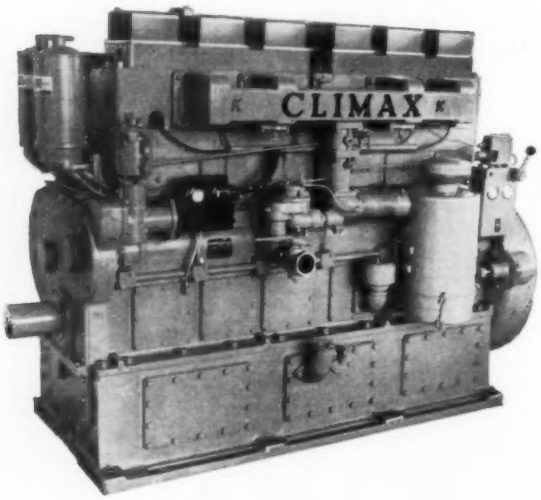
This No. 12 motor grader has been equipped with a shiftable moldboard, snow plow and bulldozer mounting, and snow wing, all hydraulically operated.

In the new snow plow and bulldozer mounting, the cylinder is controlled by a 4-position valve that permits floating and, at the same time, gives down pressure when needed.

Two cylinders are mounted on the mast to control the cable that supports each end of the snow wing. This type of control provides increased speed for moving the wing around poles, fences and other obstructions.

Power for the new attachments is furnished from an enclosed hydraulic system mounted on the front of the dashboard between the frame members. Valves, located inside the reservoir, can be stacked to permit any or all of the attachments to be used together.

A detailed description of the new grader attachments is available from the CATERPILLAR TRACTOR CO., PEORIA, ILL. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 806.



AN ENVIABLE REPUTATION

Climax sewage gas engines have established a reputation for economy, dependable operation and low maintenance cost, in more than 70 Sewage Treatment Plants from coast to coast.

The late model 6 cylinder, in-line engine pictured here portrays the modern design which, coupled with conservative ratings, moderate speeds and carefully engineered installations, is the basis for this reputation.

The tremendous savings to be made from the use of sewage gas for power and the utilization of heat from jacket water and exhaust for buildings and digestors, make the choice of Climax engines exceedingly desirable.

climax

FOR COMPLETE INFORMATION, WRITE TO . . .

ENGINE AND PUMP MFG. CO.

208 So. La Salle St.

CHICAGO 4, ILLINOIS

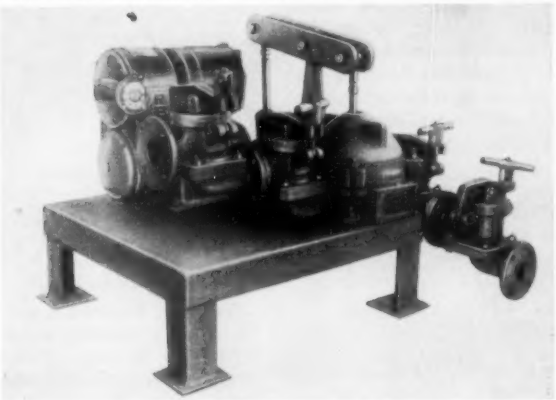
Factory—Clinton, Ia. *District Office*—Dallas, Tex.

White-Autocar Revises "Cost Record Book"

A comprehensive system of analyzing truck operating costs in your municipality is contained in the revised "Cost Record Book," recently issued by THE WHITE MOTOR CO., CLEVELAND 1, OHIO. The system can be tailored to any truck-using business and to any size fleet. It is adaptable to either highway operation, or an off-the-road fleet.

Copies of the revised "Cost Record Book," 34th Edition, may be obtained directly from White Motor, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 807.

Diaphragm Slurry Pump Won't Clog or Leak



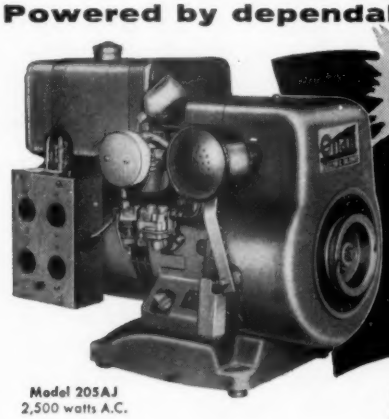
In addition to its line of Coilfilter sludge vacuum filters for municipal sewage treatment plants, the Komline-Sanderson Engineering Corp. is offering a new 2-inch diaphragm slurry pump available in a wide range of capacities from ½ to 5 gpm; 1 to 10 gpm; and 2 to 18 gpm.

The new pump is a self-contained unit featuring dual-ball check valve design and a variable-speed drive. This design permits gentle pumping action, and positive feed and metering characteristics, and minimizes clogging.

Detailed information on the new slurry pump may be obtained from the KOMLINE-SANDERSON ENGINEERING CORP., PEAPACK, N. J. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 773.

More Power, Lighter Weight, More Compact

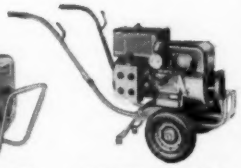
Powered by dependable 4-cycle engines



New ONAN Portable ELECTRIC PLANTS

Model 205AJ
2,500 watts A.C.

CARRYING FRAME for hand lifting and moving.



TWO-WHEEL DOLLY for easy moving by one man.

Put more power on the job!

These new power-packed electric plants are smaller . . . lighter . . . easier to take along and move around. Model 205AJ shown here weighs only 154 pounds . . . *yet it develops 2,500 watts A.C.*

Multiple receptacles allow direct plug-in of several floodlights or heavy-duty electric tools, supplying a whole crew with labor-saving electric power.

These new plants are completely Onan-built with Onan engines direct-connected to Onan generators for trouble-free long life. Carrying frames and two-wheel dollies are optional equipment.

Onan Portable Electric Plants: 500 to 5,000 watts.

Write for Folder

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

2546 University Avenue S. E., Minneapolis 14, Minnesota

What's your

GATE VALVE MORTALITY

on installations requiring frequent opening and closing?

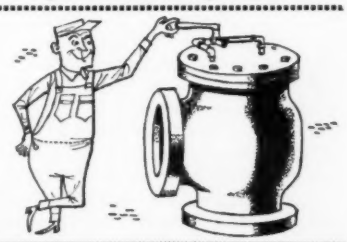
REPLACE *them*

with **G-A FLOWTROL VALVES**

✓ *Use the Angle Body and Save the Price of an Elbow Fitting*

✓ *Built to Last a Lifetime*

✓ *Operates with Finger Pressure*



HERE'S PROOF:

One of America's large railroads had a 6″ gate valve installation that operated on the average of 55 times a day. In addition to frequent repairs, this valve had to be entirely replaced every 3 months.

In the Fall of 1947, this valve was replaced with a 6″ G-A Flowtrol Valve. Now—more than 7 years later—this valve is still operating perfectly and not one parts replacement has been made!

Want to know more about this unique valve? Write for Bulletin W-8A today.

GOLDEN ANDERSON *Valve Specialty Company*

1200 RIDGE AVE., PITTSBURGH 33, PA.

Designers and Manufacturers of VALVES FOR AUTOMATION

Build on a tight budget *with no regrets*

Butler die-formed steel makes a tailored finish. Note neat eaves and roof ridge, mitered joints where walls meet roof.

Choose BUTLER factory-finished steel buildings...

You see more and more metal used on new business buildings nowadays. Cost explains part of it—better performance a good deal more. Butler adds an extra that makes metal buildings even more attractive price-wise—mass production. This gives you the benefit of a highly specialized engineering staff—plus precision-formed members that assemble into a permanent, strong, weather-tight structure. Butler buildings are so economical that they are widely used for warehouses—yet so well made you'll find them used everywhere for factories, offices, stores. Don't sacrifice quality when building money is tight—use Butler steel buildings. Get all the facts . . . mail coupon today.

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Oil Equipment • Steel Buildings • Farm Equipment
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Factories at
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For prompt reply address office nearest you:
BUTLER MANUFACTURING CO.
7350 E. 13th Street, Kansas City 26, Mo.
950A Sixth Ave., S.E., Minneapolis 14, Minn.
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Please mail more information on Butler steel buildings.

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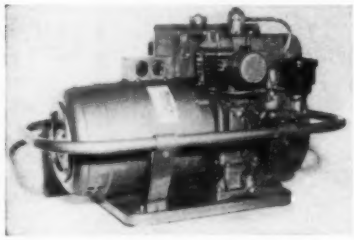
Purchasing News

Portable Power Plants

Sufficient power to operate saws, hammers, manhole heaters, floodlights, pumps and other tools and equipment, right on-the-job, will be furnished by this new series of portable AC power plants. The units are available in four models, in 1,000-, 1,500-, 2,500- and



3,500-watt sizes. Weights range from 90 pounds on the 1,000-watt model to less than 280 pounds on the 3,500-watt power plant.

All units in the new series are available for manual start, and feature protective carrying handles and convenient outlet receptacles. Two-wheel dollies are available as optional equipment. The two larger models are dual 110/220 volts as standard, making them adaptable to all standard single phase uses.

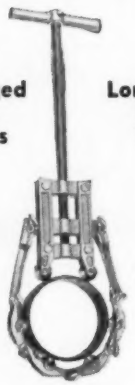
KATOLIGHT CORP., BOX 891-25, MANKATO, MINN., will furnish full information. Write directly, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 782.

Portable Air Compressor

The Blue Brute 600′, a new portable rotary air compressor, is introduced by WORTHINGTON CORP., HARRISON, N. J. The unit features an "easy-acting" clutch which permits the operator to warm-up the engine before cutting the compressor. This results in less wear, quicker starts in cold weather, and simplified engine maintenance.

The self-draining compressor eliminates the settling oil and moisture in any low areas of the cylinders, interstage chamber or discharge point. A special cylinder arrangement gravity-drains all oil and moisture during shutdowns, so

HEAVY-DUTY
ELLIS PIPE CUTTER
FOR CUTTING LARGE SIZE PIPE



Drop-Forged Frame and Links

Long-Lasting Cutter Wheels

Makes a Hit With Water Works Men

Cuts Pipe In or Out of Ditch

TWO SIZES

No. 01 for 4" to 8" Pipe
No. 1 for 4" to 12" Pipe

Write for Circular and Price List No. 35AC

ELLIS & FORD MFG. CO.
FERNDALE 20, MICH.

CITY MANAGER-CITY ENGINEER
Wanted

The City of Nederland, Texas having recently adopted Home Rule Charter will accept application for the position of City Manager-Engineer combination.

Applicant will be chosen on the basis of his executive and administrative training, experience and ability, must have an engineer's license. Attractive salary.

Address all applications stating qualifications and references to

Mayor E. L. Gish
City of Nederland
Nederland, Texas

that the blades are fully protected on cold starts.

Also featured in the new Blue Brute 600′ are a 2-stage oil separator, a separate oil reservoir and air tanks, and a shorter wheelbase. The rotor blade is easily replaced, right on the job, by an unskilled mechanic.

Detailed information on the new compressor may be obtained directly from the manufacturer, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 809.

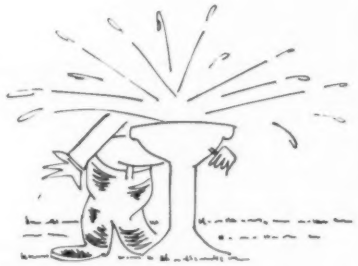
New Chain Saw

The addition of a new chain saw, the V-3, to its line of portable power-clearing tools, is announced by HOFFCO, INC., RICHMOND, IND. The new variable speed transmission saw features a dual-gear design which delivers the speed of a direct drive cut with a 1½-to-1 reduction drive. This operates the chain at a speed of 1,833 feet per minute.

The 3-to-1 geared reduction drive with its chain speed of 913 feet per minute, provides the "lugging" power needed for heavy-duty cutting. Gear changes can be handled in minutes, without special tools.

The new center-line design of the V-3 enables it to cut within 3½ inches of the ground. Other features include diaphragm pump carburetion, a concealed oil reservoir, and convenient positioning of the throttle.

Full details on the new chain saw are available from Hoffco. Write directly, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 808.



SAFE-T-CONE

ALL-RUBBER TRAFFIC GUIDES ®

Patent Pending

for EFFICIENT TRAFFIC CONTROL

During emergency street repair or the traffic rush hour . . . Safe-T-Cones are constantly on duty . . . guiding traffic safely thru congested areas. Used by traffic engineers from coast to coast, Safe-T-Cones are the answer to modern traffic problems. Available in two sizes, 18 inch and 28 inch, painted or reflectorized.

Write for complete information.

RADIATOR SPECIALTY CO.
CHARLOTTE, NORTH CAROLINA
IN CANADA: RADIATOR SPECIALTY CO., LTD., TORONTO

2011

are YOU a manhole SNIFFER?

Is manhole sniffing a lost art? Regardless of gadgets, electronic robot analyzers, chemical or physical methods, there is no danger in the foreseeable future of supplanting the nose as the principal and final method of odor evaluation.

Odors are generally mixtures of several compounds and one more powerful than the others masks the rest. A unique form of concentration while sniffing helps determine the various component osmyls (odor compounds). A manhole sniffer is just another way of saying that you are an expert in the art of olfaction.

Full recognition is now being awarded to all sewage operators who possess this talent with the formation of the **Loyal Order of Manhole Sniffers.** An engraved certificate with your name and membership card will be forwarded to all sewage plant operators without cost.

SEND FOR YOUR FREE CERTIFICATE TODAY

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____I want my membership certificate in the LOYAL ORDER OF MANHOLE SNIFFERS. Also please send me FREE copies of the following BIONETIC Tech Talks:

____Sludge Digestion
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**Reg. TM: Reliance Chemicals Corp. Applies only to a specific method of manufacture of preserved cultures of beneficial micro-organisms of uniform potency that are field tested in waste treatment plants.*

Position Opportunities

Fairfax County, Virginia

Planner III (Chief, Physical Planning Section) $6,220

Degree in planning, engineering, landscape architecture or design plus experience in comprehensive physical planning with a planning agency.

Planner III (Chief, Analytical and Statistical Planning Section) $6,220

Degree in planning, economics, sociology, political science or statistics plus experience in planning research and statistics with a planning agency.

Planner II (Assistant to Chief, Analytical and Statistical Planning Section) $5,270

Same requirements as for Section Chief, except that less experience is required.

Planner I (Land Planner) $4,440

Degree in planning, engineering or landscape achitecture desirable. Experience in land subdivision planning may be substituted for degree.

Apply: H. F. Schumann, Jr., director of Planning, Fairfax County Planning Commission, Fairfax, Virginia

Investments of Public Employee Retirement Funds

THE Bureau of the Census reports that state and local governments had $8.7-billion in cash and invested reserves of the employee retirement systems at the end of the fiscal year 1954.*

Most of these reserves (62%) are concentrated in the state governments, which administer many statewide systems for local government employees as well as systems for state employees. The 41 cities having 250,000 or more inhabitants account for another 28% of the total assets, and the 10% balance is held by systems administered by small cities, counties, townships, school districts, and special districts.

A total of $4.2-billion, or one-half of the entire reserve, was invested in federal securities. "Own government" securities—i.e., securities of a government held by its own funds—were chiefly accounted for by retirement funds administered by the City of New York which held $1.1-billion in the form of city debt obligations. One-fourth of all holdings was invested in corporate bonds, stocks, and other nongovernmental securities.

Change in Type of Investment

A shift over the past few years in the type of investment of retirement funds has resulted in a substantial increase in the proportion of nongovernmental securities. About 40% of the total investment in such nongovernmental securities may be analyzed from published financial reports of individual funds. Most of these securities are in the form of public utility bonds. There are also large investments in industrial bonds and in railroad equipment trust certificates. Several funds hold substantial amounts of mortgages, and there are small investments in Canadian government bonds and stocks.

* The State and Local Government Special Study No. 41, entitled "Cash and Investments of Public Employee Retirement Funds in 1954" may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., or from any field office of the Department of Commerce for 10 cents.

Wanted

Man who is familiar with the general field of water treatment to drive a mobile display and service unit in assigned sections of the U. S. contacting engineers, municipalities, contractors and others.

The man selected will be paid a salary plus all travel expenses. There will also be a liberal vacation arrangement.

Please forward a complete resumé including an indication of your salary requirement to

Precision Chemical
Pump Corp.
1396 Main St.
Waltham 54, Massachusetts

LEADITE

The Pioneer Self-Caulking Material for C.I. Pipe

TABLE OF COMPARATIVE QUANTITIES

Nominal Inside dia. of pipe, in.	Depth of joint, inches of Leadite	Approx. lbs. of Leadite per joint	Depth of joint, inches of lead	Approx. lbs. of lead per joint
4	2.5	2.00	2.25	8.56
6	2.5	3.00	2.25	11.71
8	2.5	4.00	2.25	14.63
10	2.5	5.00	2.25	17.70
12	2.5	6.00	2.25	20.86
14	2.5	7.00	2.25	24.02
16	2.5	8.25	2.25	33.07
18	2.5	9.25	2.25	36.88
20	2.5	10.50	2.25	40.71
24	2.5	13.00	2.50	53.02
30	2.75	16.00	2.50	65.36
36	2.75	19.00	2.50	77.96
48	3.50	30.00	3.00	121.15
54	4.0	38.00	3.00	135.60
60	4.0	42.00	3.00	150.70

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking

Hotel
FOURTEEN
at 14 east 60 th st.

New York's distinguished address —between Fifth & Madison— overlooking world-famous Central Park. Just a few steps from exclusive shops and midtown business district. Half block from buses and subway.

Rooms and suites—many with butler's pantry. Air-conditioning —TV available. Garage.

Home of the COPACABANA
Internationally known
BURGUNDY ROOM
AND COCKTAIL LOUNGE
PHONE ELdrdo 5-6000
14 East 60th Street

NEW YORK

Hotel SUTTON PLAZA
116 East 58th Street
PLaza 8-4520
Under New Management

Elm Trees Saved in Greenwich

GREENWICH, the first town in Connecticut in which the Dutch Elm Disease was discovered (in 1933), believes it has the disease licked.

The town's 50,000 residents have been paying $100,000 annually for the maintenance of Greenwich's beautiful trees, about 6,000 of which are elms, and a designated sum is set aside each year for the Dutch Elm Disease work.

From 1933 to 1945 the U. S. Department of Agriculture conducted a sanitation program on private as well as public lands that included removal and destruction of diseased elm trees. However, many valuable trees continued to become infected until Superintendent Joseph A. Dietrich of the Greenwich Department of Parks and Trees worked out a scientific control program.

A 12% application of DDT, using either oil or water as a solvent, is sprayed on the trees by a mist blower just before the trees leaf in the spring. The timing is important. Then around June, a 6% DDT spray is applied, together with a miticide that combats not only other leaf-eating insects but also a later crop of the elm bark beetles.

Rare specimen elm trees, many of them of historic interest, receive an added treatment of oxiquinoline Benzoate, one of the antibiotics used in Connecticut in tree work. This is applied in the soil surrounding the tree by use of a "feeding needle."

Mr. Dietrich arrived at this formula after conducting an experimental program to determine the exact amount of DDT that would prove most effective. He has found that night spraying—between 7 p.m. and 7 a.m.—is most successful. It cuts down on traffic interference and complaints that cars and pedestrians are being sprayed along with the trees. It also allows for better control, and atmospheric conditions appear to be better at night.

This corrective action can keep the disease from spreading, but a further sanitation program is also being planned. Elms will be scouted during the growing season as Dutch Elm suspects. If so identified, they will be tagged, recorded, and removed.

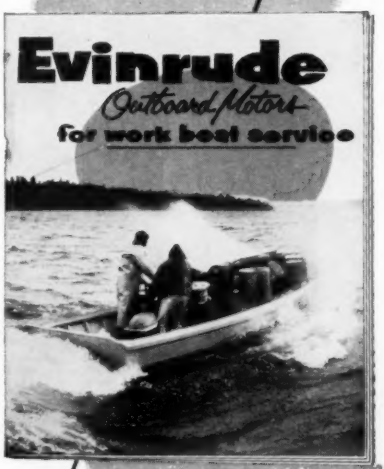
Mr. Dietrich recommends that officials of other municipalities inform the public as soon as the disease becomes a problem. Interested groups, such as garden clubs, service clubs, and chambers of commerce, are valuable assets in organizing a community program. Residents, school children, and scout groups often aid in locating diseased trees. He also believes that the citizens should be given a basic inventory of trees and cost figures, showing the soundness of preventive measures.

In smaller communities it is often desirable to start a campaign effort with neighboring municipalities, and often additional assistance will be furnished by a state agency.

Heavy-Duty Performance

A heavy snow in Crookston, Minn., means stout work for the snow-removal crews. However, this big Model 550 motor grader manufactured by the Adams Division of LeTourneau-Westinghouse is equal to the assignment. The machine is fitted with brackets for mounting a "V" plow and a wing-over attachment for tougher snow removal assignments.

new book



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OUTBOARD POWER
for
municipal
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TODAY there's a *new kind* of outboard power for work boat duty! A complete line of new Evinrude *Aquasonic* models so advanced in capability, stamina, and smooth, quiet operation that they set entirely new standards of performance. Get the facts! Send coupon for booklet.

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Send me booklet on outboard power for work boat duty.

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We have a house to put in order...

WE HAVE A HOUSE to put in order . . . and it's the house where America lives.

Of our country's many million homes, more than 1 out of every 10 are out-and-out slums. Nearly one-half of all American dwellings are in poor to "fair" condition, and urgently need basic repairs.

Something *must* be done—both to correct the slums of today and *prevent* the slums of tomorrow.

How do slums start? Usually just one house starts to slide downhill and soon a whole block changes. Pride is lost. Other houses are neglected, decay spreads.

So the 20 million homes in need of basic repair and improvements deserve equal attention. The time to stop the spreading blight of slums is *before it starts.*

What's your stake in stopping slums?

If you think your town is different, just look around you . . . If you think slums only affect persons who live in them, think again.

Slums raise taxes and lower property values of the whole town. They raise rates of crime, delinquency and disease. *Everyone* has a real stake in stopping slums. And *that includes you as a businessman.*

Your firm is certainly dependent on the welfare of the community where you do business. But it's more than good business—it's good citizenship to take part in efforts aimed at civic improvements. It's the *responsibility* of every business.

What can your firm do? The answer to America's housing problems starts with individuals. But to roll back slums is such a big job it's going to take more than individual effort. It will need the cooperation of your business and many others.

Some slums should be torn down and a fresh start made. Others can be remodeled and made to conform to better living standards. So it is up to you to support every sound program which seeks adequate housing for all our people.

New help is now available

There is a new national, non-profit organization called A.C.T.I.O.N.—The American Council To Improve Our Neighborhoods—which is designed to help all individuals or groups interested in putting America's house in order.

Send for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It lists booklets, research, check-lists, and other material which can help you. Address P. O. Box 500, Radio City Station, New York 20, N. Y.

ACTION

American Council To Improve Our Neighborhoods

Starke Climbs Ladder of Self-Improvement

STARKE, FLA., has started a program of self-improvement and is determined to continue the good work. Thus reports Gene Matthews, editor-publisher of the Bradford County *Telegraph*, in an article published in the September issue of *Town Journal* magazine. Mr. Matthews, who has been back of all the activity, took as his guide a questionnaire previously published by the *Town Journal* and got a cross-section of people to rate his community. When the first results showed a poor grade for Starke, Editor Matthews featured the questionnaire and the evidence of the town's unfavorable rating on page one of his paper.

Week after week he hammered at what Starke might do to improve its rating. He printed photos of the unsightly shacks that greeted tourists on U. S. 301, publicized the low salaries of local teachers, and beat the drum for a new swimming pool. He criticized the lack of important books in Starke's library, deplored the weed-grown cemetery, and demanded better zoning.

The town's residents wanted to know what they could do about it, and the Starke Women's Club passed out ballots asking "Which improvement first?" To everyone's surprise, a recreation center for young people was the most wanted of the 15 projects listed, and under the direction of the supervisor of schools an old USO building has been renovated and reopened for that purpose.

Zoning and planning for the town's future growth rated high in the balloting, and a new zoning code has already been adopted. New county legislation is being prepared to abolish auto graveyards and unsightly signs on the town's approaches. The local Garden Club, through its efforts to beautify the highway approaches, has received a promise from county officials of $1,000 for palm trees—with more to come later.

Starke has discovered that, once started on the road to improvement, it becomes increasingly easy to keep going.

The Annual Index

for 1955 has been bound into the December issue of the magazine. Additional copies of the Index may be obtained by addressing requests to the Circulation Department, 470 Fourth Ave., New York 16, N. Y.

"..in continuous operation since June 30, 1934..."

TALLER & COOPER

Toll Collection Equipment helps keep traffic rolling through the Sumner Tunnel

For over 21 years, Taller & Cooper toll equipment has been in continuous operation in helping traffic roll smoothly into and out of the Sumner Tunnel in Boston.

According to the Boston Public Works Department, "the installation at Boston speaks highly of the type of workmanship performed by the Taller & Cooper Company".

These many years of service in Boston are typical of Taller & Cooper's many years of service on major toll facilities all over the world.

If you are planning a facility that will need a toll collection system or toll booths, let Taller & Cooper's experience help you in your planning.

WRITE TODAY for design and construction details

TALLER & COOPER, INC.

ENGINEERS • MANUFACTURERS

75 FRONT STREET • BROOKLYN 1, NEW YORK

TOLL BOOTHS
TOLL COLLECTION SYSTEMS

TALLER & COOPER Toll Collection Equipment is used on every major toll facility in the U. S.

REPRESENTATIVE: Let me start the answer with this picture.

ACCOUNT EXECUTIVE: *Why the same man for twelve different cities? And how does this relate to my question?*

REP.: In metropolitan areas cities sometimes form a municipal partnership to solve common problems. In this case, Newark and 11 adjacent New Jersey municipalities established a joint municipal enterprise to build and maintain 56 miles of main trunk sewer and a big treatment plant. The key administrator is an engineer named Edward P. Decher, called Secretary, and he does the purchasing.

A.E.: *Then your audited circulation statement shows only one copy for the sewage treatment function in 12 cities?*

REP.: Right! — And remember — Decher buys other equipment besides sewage treatment products.

A.E.: *Like what?*

REP.: Street and sidewalk repair materials, motor controls, safety equipment, and power lawn mowers. — But to get back to your original question —

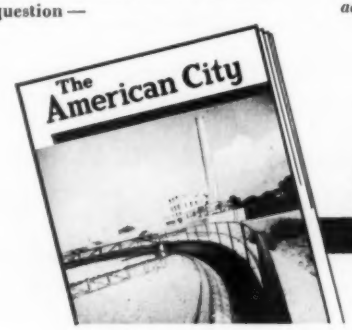
Besides these municipal partnerships, there are three main groups that influence purchasing. One is the department heads — in your client's case, sewage works officials. They use such titles as sewage treatment superintendent, sewage plant operator, and superintendent of sanitation. However, in many cases the city engineer or water works superintendent has the added responsibility of administering the sewage works facilities.

A.E.: *OK, that's one group. Who are the others?*

REP.: The second group is composed of consulting engineers, whose professional advice carries great weight on sewage treatment and water works purchases.

The third group includes city managers, mayors, and commissioners. These administrative officials have to approve the purchasing recommendations of the other two groups.

A.E.: *If I follow you, it takes several people to complete a municipal purchase. I can see why* THE AMERICAN CITY'S *policy of reaching all the city officials pays off for advertisers.*



The American City

470 Fourth Avenue, New York 16, N. Y.

About People

The recent appointment of **K. T.** Snyder, head of the K. T. Snyder Co., as national sales agent for the **Gulf States Asphalt Co.,** South Houston, Tex., is announced by L. F. Bramble, president of Gulf States. Mr. Snyder will handle the sales, promotion and service of all of the company's products, including sewer-pipe jointing compounds, and enamel for coating steel water pipe. Headquarters for the K. T. Snyder Co. are located at 4101 San Jacinto, Houston, Tex.

K. T. Snyder

Frederick S. Blackall, Jr., president and treasurer of The Taft-Peirce Mfg. Co., and Frederick W. Greer, chairman of the board of the J. W. Greer Co., have been elected to the board of directors of the **Hersey Mfg. Co.,** South Boston, Mass. Hersey offers municipalities a complete line of water meters.

A new district representative, John McCaffrey, will handle Huber-Warco sales in seven western states, two Canadian provinces and Alaska. Mr. McCaffrey will make his headquarters in Pleasanthill, Calif. Main offices of the **Huber-Warco Co.** are located in Marion, Ohio.

As new vice-president of **The Colorado Fuel and Iron Corp.,** Denver, Col., Hubert C. Smith will supervise operations of the company's Eastern Division, according to Alwin F. Franz, president. Mr. Smith is a former vice-president of the Great Lakes Steel Corp.

The Outdoor Lighting Dept. of the **General Electric Co.,** Hendersonville, N. C., announces the appointment of Roy H. Fielding as senior application engineer for traffic signal and control equipment.

New manufacturer's representatives appointed by the **Four Wheel Drive Auto Co.,** Clintonville, Wis., include Joseph B. Winder, H. G. Muehlhof, R. C. McCormick, and the Dakota Fire Apparatus Sales Co. These agents will handle the sale of FWD fire apparatus in Pennsylvania and North and South Dakota. All FWD equipment was previously sold entirely through dealers.

Marie Singler Orchard, wife of William J. Orchard, passed away on Nov. 28. Mr. Orchard, former general manager of **Wallace & Tiernan, Inc.,** Belleville, N. J., is now a member of the company's executive committee and board of directors, and has been active in the water and sewage-treatment fields for many years.

Over 15 years' experience in the field of flow measurement and control will aid Seymour Blechman in his new position as executive vice-president of the **Brooks Rotameter Co.,** Lansdale, Pa. Mr. Blechman is a former vice-president and sales manager of the Fischer & Porter Co.

National Clay Pipe Manufacturers, Inc., Cleveland, Ohio, an association of vitrified clay pipe manufacturers, announces the addition of Ray C. Conover to the firm's board of directors. Mr. Conover is a vice-president of Gladding, McBean & Co., of Los Angeles.

(*Continued on page* 218)

Surrounded by Cleveland

Heart of downtown—only minutes away from everything. 800 beautifully decorated, spacious rooms and suites—each with private bath and radio.

Room Rates from $4

Hotel Hollenden

Cleveland's Most Interesting Hotel

Conveniently Located at Superior Avenue and East Sixth Street

Famous for fine wining and dining. Six outstanding restaurants and bars.

Garage open round the clock.

Excellent facilities for Conventions and Special Events.

ROBERT P. JOYCE, General Manager

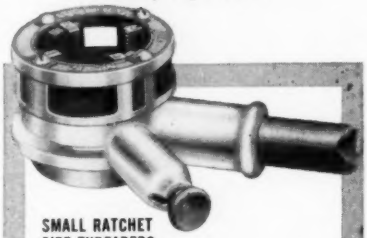
INTERNATIONAL HOTELS

AN OLD FAVORITE

and 2 new Power Drives

by TOLEDO

National Standard for Quality Pipe Tools

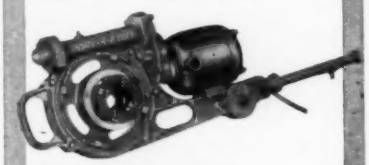


SMALL RATCHET PIPE THREADERS

Ideal for close corner work—instant change, drop-out die head—cuts easy with finest precision made tool steel dies—easily removed for regrinding—up to 2". Excellent for use with power drives.

NO. 78 PORTABLE POWER DRIVE

Lightweight—powerful—weighs only 75 lbs.—sturdy folding legs—built like a machine tool. See it at your supplier's today. Handles ¼ to 2" pipe.



NO. 68 TOLEDO PORT-A-PONY

A 26 lb. power drive—carry it anywhere. It threads, cranks, pulls, lifts—versatile and powerful. Add power to hand equipment. Write for complete information.

TOLEDO PIPE THREADING MACHINE COMPANY

TOLEDO 4, OHIO

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS

TOLEDO

PIPE THREADERS - PIPE WRENCHES - PIPE MACHINES

(*Continued from page* 217)

Arthur A. Hanson, treasurer of the **Neptune Meter Co.,** New York City, since 1946, has been elected a vice-president of the firm, according to Dante E. Broggi, president. Mr. Hanson's association with Neptune Meter dates back to 1928. He was appointed controller of the firm in 1941, and was elected a member of the board of directors in 1946.

A. A. Hanson

From the **Atlas Mineral Products Co.,** Mertztown, Pa., we learn of the appointment of a new regional representative, Charles Jensen, to handle the sale of pipe jointing compounds in the Northeastern United States. Mr. Jensen's territory will include the New England and Middle Atlantic States.

As new factory representative for the **Van Brush Mfg. Co.,** Kansas City, Mo., Robert C. Chenoweth will market a large number of items for municipal and industrial users of brushes and brooms. Mr. Chenoweth has been closely associated with the brush industry for the past 18 years, last serving as factory representative for the Fuller Brush Co.

Everett M. Jones, executive vice-president of the **Simplex Valve & Meter Company,** Lancaster, Pa., reports the appointment of a new advertising manager, Joseph C. Holzwarth, Jr. Mr. Holzwarth is a former member of the Armstrong Cork Company, and has served in the advertising and sales department of DeWalt, Inc. He has been with Simplex since 1954.

J. C. Holzwarth, Jr.

Scheduled to assist Leo Wiant, administrative vice-president of **Mueller Co.,** Decatur, Ill., is Harlan A. White, a former partner with the firm of Gauger & Kiehl, certified public accountants.

The task of directing sales of submersible pumps East of the Mississippi River will fall to Alfred B. Krechtler when he takes over as new eastern sales manager for **Pleuger Submersible Pumps, Inc.,** Lancaster, Pa. Mr. Krechtler has been active in the pump industry since 1940.

The recent annual meeting of the board of directors of **Portland Cement Association,** Chicago, Ill., was highlighted by the reelection of Emory M. Ford as chairman of the board. Mr. Ford is also chairman of the Huron Portland Cement Co. New directors elected to office include C. S. Crawford, president of the Whitehall Cement Mfg. Co., and Allan B. Sunderland, president of the Ash Grove Lime and Portland Cement Co.

A. V. Williams, P. H. McKinley and R. H. Harper, all members of the Williams & McKinley Sales Co., will represent **The Fisher-Pierce Co., Inc.,** in the St. Louis-Kansas City area. Main offices of The Fisher-Pierce Co. are located in South Braintree, Mass.

William P. Drake, president of the **Pennsylvania Salt Mfg. Co.,** Philadelphia, Pa., announces the appointment of Lee H. Clark as vice-president of Pennsalt. Mr. Clark is general manager of the company's Sharples Chemicals Division.

When N. V. Chehak takes over as new assistant sales manager for the **Link-Belt Speeder Corp.,** Chicago, Ill., he will assist in the marketing of a complete line of crawler and rubber-tired shovel cranes, reports C. M. Basile, vice-president of sales and manufacturing. Mr. Chehak has been connected with Link-Belt Speeder since 1949.

Wiley H. Nanney, field construction superintendent for the **General Filter Co.,** Ames, Ia., has been transferred to the Layne-New York Co., Inc., at Linden, N. J. He will serve as general field superintendent for the company's Water Treatment Division.

As new assistant fibre products manager for the **Line Material Co.,** Milwaukee, Wis., David J. Coughlin will be concerned with problems encountered in the use of Perma-Line pipe and conduit. He will work under W. M. Bloom, product manager of fibre products.

Eight engineers have been added to the staff of **Haskins, Riddle & Sharp,** consulting engineers of Kansas City, Mo. These include G. Russell Huff, Charles P. Brooks, Howard Houska, Edward C. Maran, L. S. Walker, Jr., John A. Zaffle, Marlowe Lankford, and L. E. Ordelheide. The company specializes in all phases of hydraulic, water-and-sewage-works engineering.

After 50 years of service with the **R. E. Dietz Co.,** Syracuse, N. Y., Arthur W. Carr announces his retirement. Mr. Carr has served as sales manager of the company's Lantern Division since 1925. His duties will be taken over by Gerry Dietz, president of R. E. Dietz. Raymond Burrows, assistant to the president, will become assistant sales manager.

Gerry Dietz

New general manager for the Henry Disston Division of the **H. K. Porter Co., Inc.,** Pittsburgh, Pa., is Lawrence L. Garber, a vice-president of the parent company. Mr. Garber is the former general manager of Porter's Alloy Metal Wire Division. He is succeeded in this position by Emmett Mann, recently elected a vice-president of the firm. In addition to the recent acquisition of Henry Disston & Sons, Inc., Porter has also acquired the firm of Carlson & Sullivan, Inc. The latter will operate as a part of the new Henry Disston Division.

L. L. Garber

Two new managerial appointments are announced by Thomas J. Kehane, vice-president in charge of sales for the **Worthington Corp.,** Harrison, N. J. John B. Laramy will take over as assistant general sales manager for Worthington, and Alvin F. Welsh will manage the firm's Marketing Research Department.

Scheduled to assist G. E. Burks, vice-president of the **Caterpillar Tractor Co.,** Peoria, Ill., is Frank A. Grooss, a specialist in the development of wheel tractors, motor graders and scrapers. Mr. Grooss was formerly assistant chief engineer of the company's Decatur (Ill.) plant.

James P. Stewart, president of the **De Laval Steam Turbine Co.,** Trenton, N. J., announces the appointment of John D. Horth as assistant manager of the company's Compressor Sales Department.

W. E. Ewens, former research engineer for the Toronto (Can.) Transit Commission, recently opened a new consulting engineering practice in transit planning and traffic engineering. His offices are located at 462 Morrison Rd., Oakville, Ontario, Can.

Marshall Lewis Hough, president of the Darling Valve & Manufacturing Co., Williamsport, Pa., passed away on December 7th. Mr. Hough had been associated with Darling Valve since 1920, and was elected president of the company in 1939.

The states of Wisconsin, Minnesota, Michigan, Illinois, Iowa, Missouri and Indiana will be covered by W. F. Jahn when he takes over as new regional representative for the **Good Roads Machinery Corp.,** Minerva, Ohio. Mr. Jahn, formerly associated with Gar Wood Industries and the Elgin Sweeper Corp., will be located at 474 Arlington Ave., Elgin, Ill.

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(Additional traffic items on pages 127 and 129)

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A 580-CAR-LOT is being provided in Sunnyside, Queens, at a cost of $213,000, including modern lighting. Upon completion, the project will be operated by the New York City Department of Traffic. Parking meters will be installed to regulate the spaces and to pay for the improvement. The meters will operate on nickels, dimes, and quarters at the rate of 5 cents per hour.

T. T. WILEY
Commissioner of Traffic, New York, N. Y.

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TRAFFIC accidents in our town of 16,000 persons were increasing to a point where something corrective had to be instituted. So we purchased a Traffic Timer manufactured by the Muni-Quip Corporation, of Decatur, Ill., which can be set up in any part of town within 15 minutes.

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In the two months following the onset of our "operation", our officers wrote 108 tickets and decreased traffic accidents 96%.

FRED A. HENDERSON
Police Chief, Herrin, Ill.

* * *

IS THERE "punch" in your city's pedestrian signals? That's what New York City searched for—a pedestrian signal big and brilliant. A signal was designed in the Department of Traffic in the shape of two grids, one behind the other. Red and green neon tubing are placed behind stencilled "Walk" and "Don't Walk" glass panels. The signal face is 18 inches by 24 inches with 5½-inch letters, as reported in THE AMERICAN CITY for June 1955. Contract for 300 signals and for 800 signals was awarded to the Winko-Matic Signal Co., of Lorain, Ohio.

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—THE NO. 12 DOES A JOB

These two pictures, one taken in June, the other in February, show the same CAT* No. 12 Motor Grader at work for the City of Kellogg, Idaho. Whether there are streets to be graded or snow to be cleared, this big yellow grader does the job well.

"It's a wonderful machine," says Tom Olson, Street Superintendent. "And wonderful is the word for Caterpillar dealer service, too. Together they keep us sold on Caterpillar products."

The No. 12 is now available with new hydraulically actuated plow and wing. This means faster movement of the wing and down pressure to the snow plow when needed. A completely new hydraulic system powers these attachments.

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Many municipalities have compared and have found that Mark-Time is the meter with the *lowest overall cost.*

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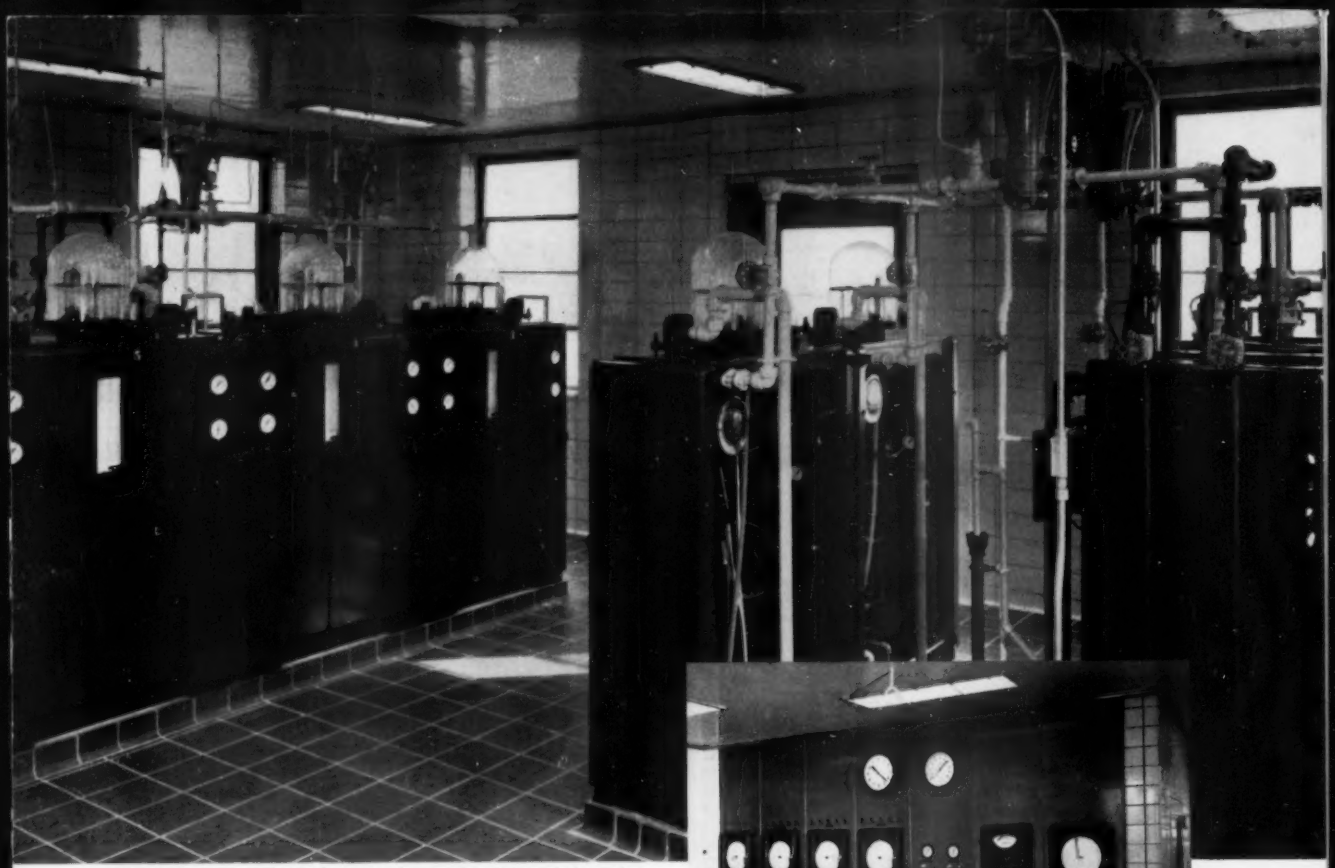

W&T Chlorinators with chlorine evaporators and master control panel (insert) used at the D.C. Sewage Treatment Plant.

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modern concepts of sewage chlorination control

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